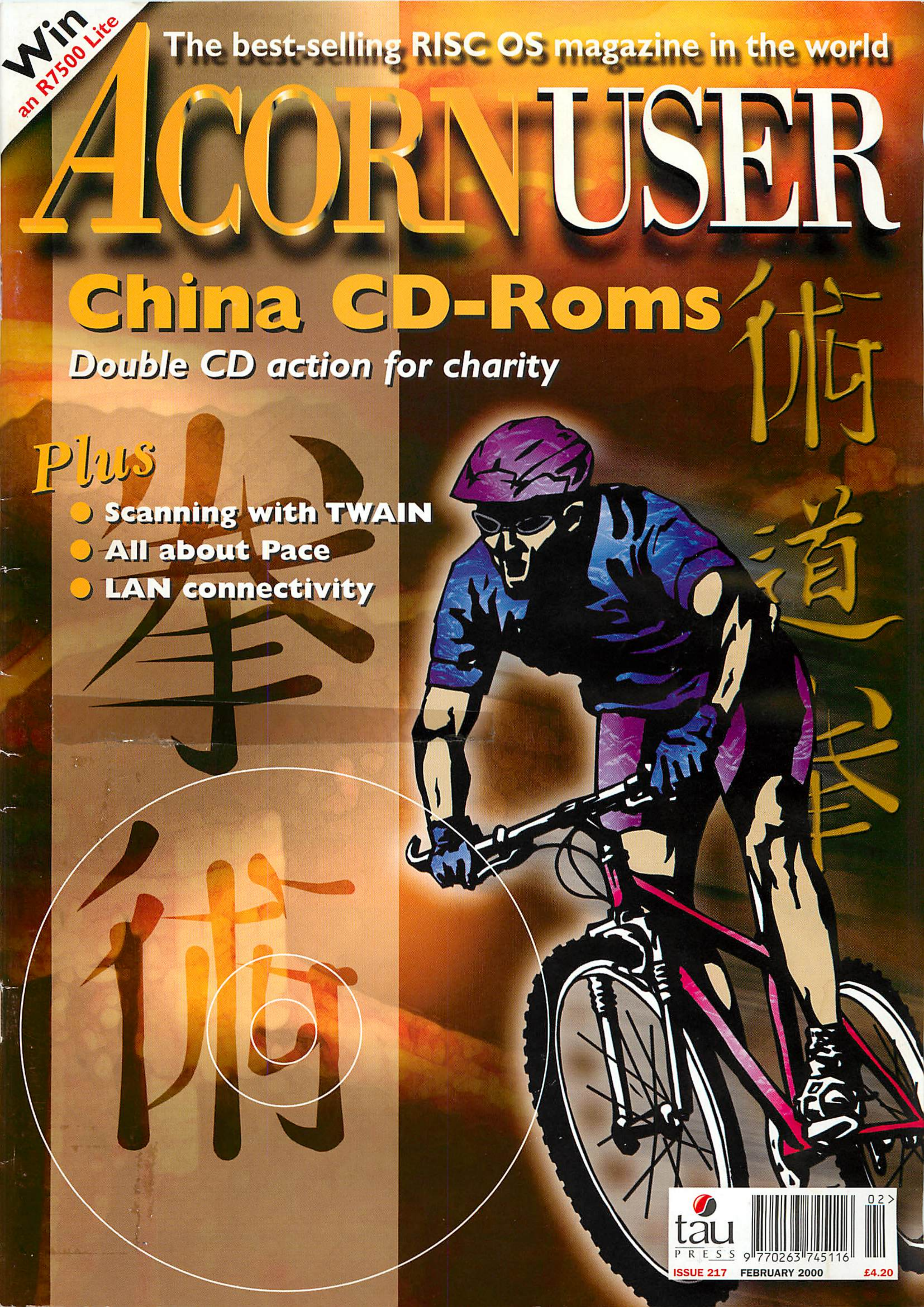
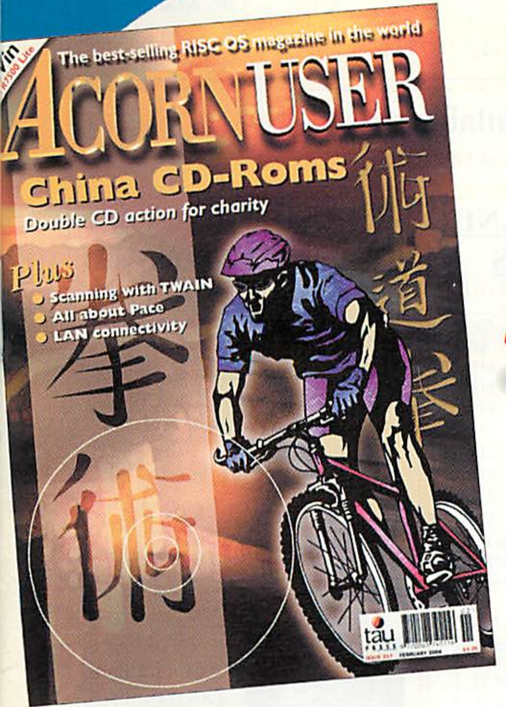


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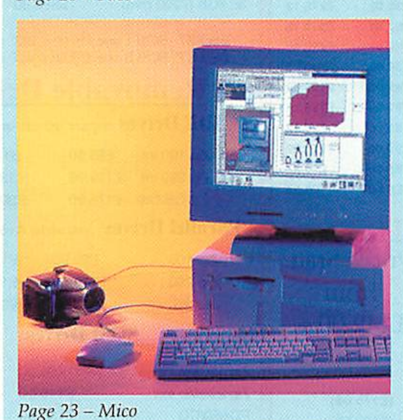
Regulars

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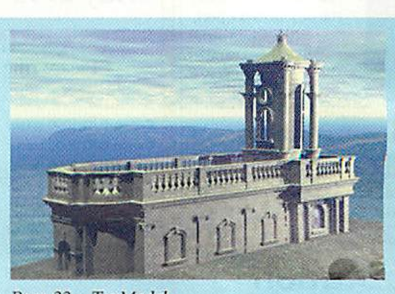
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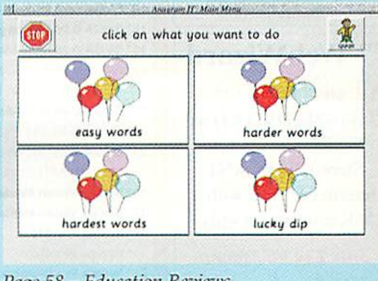
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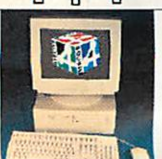
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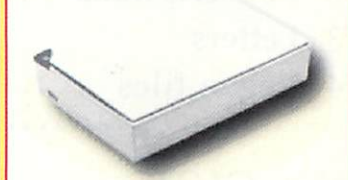
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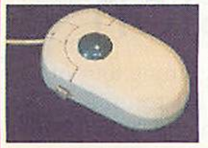
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VidC enahncer (HW/SW)	£20.00
Wavelength	£10.00
World Class Leaderboard (GOLF)	£10.00
Zool (HD)	£10.00

1/2 price (or less) Book

Dabhand Guide "Budget DTP"	£2.50
Dabhand Guide "C" ver 3	£5.00
Dabhand Guide "C" ver 2	£2.50
Dabhand "Graphics on the ARM	£5.00
Dabhand Guide "Impression"	£5.00
Internet info server	£20.00
SQL	£17.50

Acorn CD-ROM Software

Abuse	£22.00
Crystal Maze	£15.00
Descent	£27.00
Doom + Trilogy	£30.00
Doom + Trilogy with book	£32.50
Doom Secrets book	£10.00
Final Doom (req's Doom)	£15.00
Heroes of Might and Magic 2	£32.00
HoMM Price of Loyalty exp	£22.00
Heretic & Hexen Triple pack	£30.00
Hutchinson Encyclopedia	£39.00
Quake Pack (AVAILABLE NOW)	£23.00
Robert Duncan Cartoon KIT	£39.00
Syndicate	£25.00
Tots TV ABC	£15.00
YITM Electricity and magnetism	£15.00
YITM Elements	£15.00
YITM Materials	£15.00
YITM (all three titles)	£35.00

CD General Resource Titles

10000 Clip Art (Draw Format)	£5.00
550 fonts	£5.00
D'File PDCD 5	£10.00
Symphony Music collection	£5.00
TopicArt CD	£5.00

Various Hardware Bargains

A3000 2Mb bases from	#	£55.00	£64.62
A3010 2Mb bases from	#	£85.00	£99.88
A3020 2Mb bases from	#	£115.00	£135.12
A4000 2Mb bases from	#	£150.00	£176.25
A5000 4Mb bases from	#	£210.00	£246.75
A7000 4Mb bases from	#	£275.00	£323.13
A4 Portables (6 months wty)	#	**£500.00**	**£587.50**
Risc PC 700 bases from	#	£435.00	£511.13
SVGA Monitors Various from	#	£45.00	£52.88
SCSI 8x 4 way autostacker		£85.00	£99.88

all 2nd user items 90 days Wty

Alternative PC Bases

i.e. Siemans P200 MMX from ONLY £249.00 + VAT ring for latest prices.

HOW TO ORDER

BY MAIL or PHONE: Cheques or P.O.s should be made payable to 'CTA DIRECT'.
CREDIT CARD / SWITCH please give name, address, tel. no, card no, expiry date, issue no.
BY EMAIL: sales@cta.u-net.com
OFFICIAL ORDERS by MAIL or FAX please
Carriage charges inc. ins. & packaging charged at cost
Small items (under 2Kg).....no more than £6 + vat
One box of items totalling upto 25kg...£6.50 + vat
Computer systems.....................................£13 + vat
All prices are correct going to press. E&OE
All goods are fully guaranteed but not supplied on approval

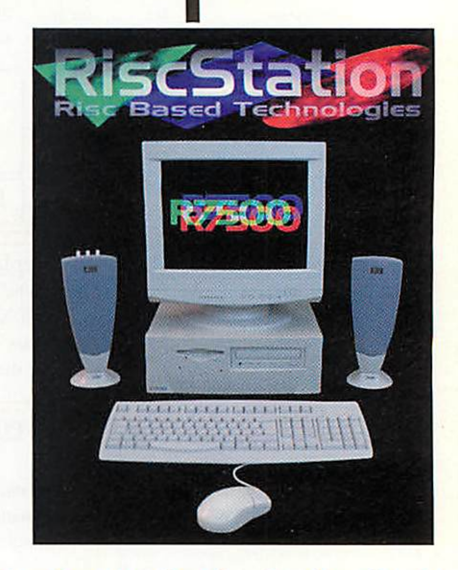
RiscStation ships

The waiting is over and barely a year after the official formation of RISCOS Ltd, one of the new hardware vendors, RiscStation Ltd, which crucially relied on the independent availability of RISC OS, has begun shipping its first RISC OS machines. Our information is that ExpLAN were the first dealer to deliver to a customer site, in this case The Sexeys School, Bruton, in Somerset.

The school took 15 network-equipped RiscStation Lite machines fitted with 17in monitors, replacing a collection of old A3020s which will be used elsewhere in the school. The new machines were earmarked for design technology students, running *PowerCAD* and *Photodesk*, meaning the inclusion of the ARM floating point capability was essential, as was the implementation of a fast IDE harddisc interface.

With Castle Technology firmly established with its Acorn-branded range, Microdigital waiting in the wings and now RiscStation truly off the launch pad, we have a RISC OS hardware supply scenario few would have confidently predicted 12 months earlier.

May this be just the beginning! RiscStation Ltd on 01942 797777, e-mail: sales@riscstation.co.uk, Web: http://www.riscstation.co.uk, Explan, tel: 01822 613868, e-mail: info@explan.demon.co.uk



New Simtec IDEFS

Simtec has updated its support software for the Simtec 16 bit IDE interface. It is now possible to format and partition with the new RISC OS 4 F+ format with RISC OS 4, using IDETool 1.11f. The Filer icons have been updated to conform to the new RISC OS 4 style, but the original filer is still available for non-RISC OS 4 users.

There is also a new Removable Media Filing System module for read/write ATAPI drives, including Zip100, Zip250 and LS120. The discs can now be conveniently formatted from the filer menu, in a similar way to a floppy drive, though LS120 compatibility with Acorn format floppies is still not available.

The upgrade is now available to download from Simtec's Web site. Note, you will need to download *IDETool* and *Rombinder*. Otherwise, send an SAE to Simtec directly: Simtec Electronics, Avondale Drive, Tarleton, Lancs, PR4 6AX. E-mail: info@simtec.demon.co.uk

Microsoft scares Psion

During last summer, Microsoft No.2 Steve Ballmer made a lightning tour of Europe in order to recruit crucial support for Windows CE – Microsoft's operating system for small portable devices has failed to gain critical mass after three years of trying.

On the one hand, 3Com's Palm Pilot platform has been the runaway success in this market sector, taking three quarters of the sales statistics this year. On the other, Motorola, Psion, Ericsson and Nokia have joined up to form Symbian, which is dedicated to Psion's Epoc operating system as used in Psion pocket computers. As these companies represent the lion's share of the mobile phone market, Symbian is seen by Microsoft as a huge threat.

Ballmer's European adventure appears to have had mixed results. Philips, which was one of Microsoft's key partners in Windows CE, has now pulled out of the market after very poor sales despite favourable comments about its product. However, Microsoft has been able to do a deal with Ericsson regarding future co-operation on e-mail services for mobile phones and related pocket organiser devices. The announcement rocked Psion's share price as a somewhat ignorant stock market immediately interpreted the move as a serious blow to Symbian.

Ericsson quickly moved to scotch rumours that it was abandoning Symbian and pointed out that the Microsoft deal was complementary to its Symbian plans. Indeed, some commentators are now suggesting that Microsoft could port its Internet applications to the Symbian platform, especially as Symbian is now a technology partner of Palm Computing.

Extrapolate all this even further and you could even draw the conclusion that Microsoft is preparing to abandon CE. At the very least, Microsoft is hedging its bets.



Canon strengthens ink-jets

Recent coverage in these pages regarding Canon's recently announced mainstream photo-capable ink-jet printer, the BJC-6100, apparently caused a minor controversy because we seemed to suggest it was better than the existing BJC-7100, which is widely supported in the RISC OS community. There is more bad news for Canon BJC-7000 fans as that model line is now almost obsolete, to replaced by an impressive new photo-specific model, the BJC-8200 Photo.

To clarify our earlier point, the BJC-7000, which is now a two-year-old design, was launched to much technological acclaim. In particular, it was claimed to be able to print impressively on plain paper through the use of a plain paper optimiser to fix the ink as it impacted on the paper. This was a claim which most reviewers had problems verifying.

The BJC-7000 is a fine printer and, in particular, as robustly built as they come. But with respect to Canon's marketing hype at the time, the 7000 was comparatively slow, expensive and print quality wasn't as excellent as we had been lead to expect. Although it is not currently supported by RISC OS, the cheaper, faster BJC-6100 makes the 7100 look rather redundant and that feeling is made stronger by the announcement of the 8200.

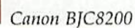
The £300 8200 Photo is a true 1200x1200dpi printer and, like the 6100, it offers separately replaceable ink tanks for each primary colour. Canon test results suggest it is twice as fast as the existing ink-jet photo benchmark printer, the Epson Stylus Photo 750 and test prints we've seen show it is capable of visibly superior results as well.


Canon BJC3000

Meanwhile, Canon has unveiled the BJC-6500, an A3-capable version of the 6100 and then there is the BJC-3000, a new mid-price £120 printer. The 3000 also offers separate ink tanks for each colour, but its 'photo' mode does not benefit from 6-ink printing.

These are all excellent new models from Canon, but the prospect of using them on RISC OS machines with the current version of *Printers*. After talking to a couple of printer driver developers, it's clear that RISC OS *Printers* requires considerable improvements in order to exploit or even achieve basic compatibility with Canon's and some of its competitors' new models. It's not always easy to get the required information from the manufacturer when building drivers.

In Spacetech's case, they felt the only solution was to design and build their own proprietary printer drivers system. But signs are that there is increased flexibility and commitment from RISCOS Ltd when it comes to improving RISC OS components, particularly *Printers*. There is plenty of work to be done, but progress is no longer at a standstill.


Canon BJC8200

Schema 2 and Virtualise

Schema 2 is Clares powerful spreadsheet application for RISC OS, related to the spreadsheet found in Psion pocket computers, *Schema 2* includes a powerful macro programming language, along with a large number of functions plus a graphing facility. The spreadsheets in Acorn's *Advance*, and in *NCWorks* network computers are also cut down versions of *Schema 2*, so the the files from these will load into Schema 2.

Schema 2 version 1.05 changes include: the ability to have up to 512 styles/effects; up to 512 drawfiles/graphs in a sheet; long filename support for RISC OS 4; automatically load a user-supplied macro file when *Schema 2* loads; automatic sheet recalculation on loading; pasting operations into a block now do a replicate where appropriate; visible indication of cell overflow if required; formulae can be exported as CSV; access the save dialogue box via an icon ribbon button; extended use of cursor keys when entering data, and so on. All this is available for £10 to upgrade previous versions.

Virtualise is a virtual memory system for the Risc PC and A7000+, providing virtual memory support for data in dynamic areas. This allows you to treat the hard disc as an extension to memory. Version 1.17 adds RISC OS 4 compatibility. This upgrade is available for just £5. Clares Micro Supplies Ltd, tel: 01606 833999, Web: http://www.claresmicro.com

RISC OS 4 games

iSV Products is offering a strictly limited number of StrongGames CDs for RISC OS. These each contain over 140 games suitable for RISC OS 4. The CD comes complete with a graphical front-end showing a sample of each game on screen. These CDs are available for £11.50 including UK P&P. It's a one-off offer as once the current stocks have been sold, that's it. ISV's Web site is at: www.isvproducts.co.uk/games.htm



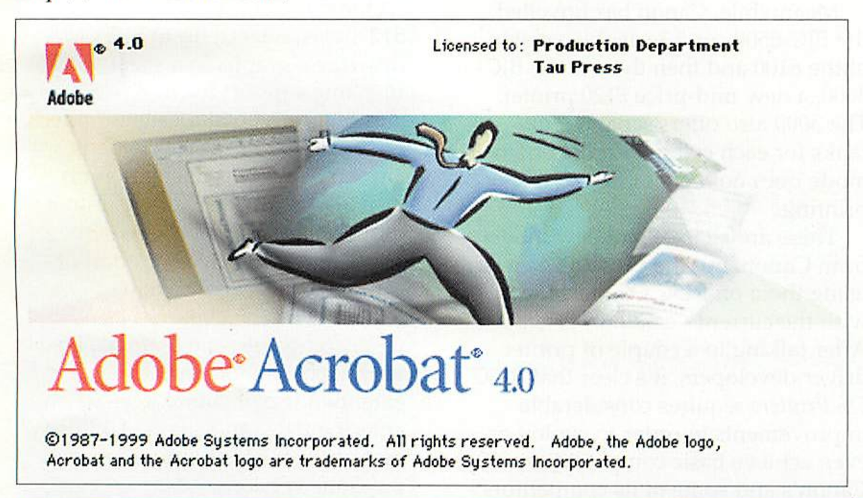
Cerilica goes PDF

PDF stands for Portable Document Format and is popularly associated with Adobe's *Acrobat* brand name for its PDF support applications. It's based on PostScript, the page description language also originated by Adobe. The RISC OS equivalent of *Acrobat* is RiScript, which has been available for some time after being initially developed by R van den Bos and J Medema. As we hinted at last month, Cerilica, best known for its *Vantage* graphics package for RISC OS, has completed a deal with the authors and Paul Middleton (Uniqueway and Riscos Ltd) to assume exclusive publishing rights to the package.

Cerilica *RiScript* is described as a major upgrade over previous versions with a revised user-friendly interface, a more capable interpretation engine and new features such as PDF file creation. The price has also been halved to £59.

If you have a PostScript file, you can double-click on it to generate an on-screen view which can be exported to *Draw* or to Cerilica's own *Vantage* file format. If you want to share the document easily with users on other platforms, simply export to the PDF format. Indeed, *Acorn User* itself is produced using a PDF stage.

Cerilica also points out that *RiScript* can be used to extract layout and content information from certain applications like Computer Concepts' *Impression*. Cerilica are at tel: 01989 567350, e-mail: cerilica@cerilica.com, Web: http://www.cerilica.com/



Y2K PC Card warning

By the time this appears in print, 1st January 2000 and all that entails will have passed. However, it has to be said that not all so-called Y2K problems will have been left behind for good after this date. If you have a PC Card running Microsoft Windows especially, it's worth taking a few extra precautions.

For example, if you accept files from a third party source, these could contain data containing incorrectly formatted dates. The date 'windowing' strategy used by Windows to get around the Y2K problem is a fudge and easily confused if you know how. And we haven't even mentioned the BIOS yet!

Aleph One, which is now the main source of support information for PC Card users, has Y2K resources to help minimise Millennium Bug problems. Their support team will be returning from the New Year break on 3rd January, 2000. Some advice is available on the Web at: http://www.aleph1.co.uk/AcornProd/Support/Y2K.html

Aleph One Support: 01708 403028.

Astronomy make-over

Rick Hudson, the New Zealand author of *ROCchart*, a RISC OS star-charting program, has announced a new version. *ROCchart* differs from many astronomy programs in that it is not a type of electronic "planetarium" but designed purely for the generation of star charts. Therefore, it knows nothing of solar system objects or observer-specific details.

However, it excels in generating fast, high detail, charts from the Tycho and Guide Star catalogues. Improvements in the latest version include a universal parser for quick object location and state saving/loading (some interesting events are provided in the archive). It also works with a brand new program called *Astrobase*.

This is an astronomical database server which provides lookup, search, cross-reference and browse facilities for various astronomical databases. It is actually a pre-release version (0.03 alpha) since a few facilities are not yet finished and some bugs probably still exist, according to Rick.

The databases it currently supports include: the databases supplied with the commercial PC application *Project Pluto Guide CD-ROM* (19 databases incl. comets and asteroids); *NASA's ADC CD-ROM* (11 databases); Local copies of ADC databases (14 databases); Computation of major solar system objects, User-created databases.

ROCchart depends entirely on these databases. Without them only the major solar system objects will be available, so unless you have one of the two CD-ROMs listed above, databases will need to be obtained, like the ones on the ADC FTP site: ftp://adc.gsfc.nasa.gov/pub/adc/archives/catalogs/

Astrobase can be downloaded from http://members.xoom.com/rick_hudson/software/astrobase.html. Rick Hudson can be contacted via e-mail at: rick@actrix.gen.nz and his Web site is at http://www.actrix.gen.nz/users/rick/

PDP11 emulation

Dr Francis Douse has announced that he is working on a RISC OS emulator of the Digital Equipment Corporation (DEC) PDP-11 range of minicomputers. The PDP-11 can be attributed as the birthplace of UNIX, C and the early Arpanet, which lead to the Internet as we know it today.

The project is being based on earlier work done by Rob Supnik of DEC, as was. The aim is to emulate the DEC MicroPDP, which was the predecessor of the MicroVAX. It's possible the more powerful PDP-11/34 midrange systems could be included in the emulation, as well as a range of peripherals and auxiliary storage systems.

Why is the DEC PDP so important? Sentimentality must be near the top of the list. Most programmers of the 1970s and early 1980s (including your hardworking News Editor and our aging Editor) spent some time on DEC PDP11s at some stage. Rather like the unkillable BBC Micro, there are still plenty of PDP11s working away today, even though their computing power is dwarfed by even a basic modern PC.

The software, once complete, will add new computing functionality to A7000+ RISC OS computers with RISC OS 3.7 or better. Users will be able to use a virtual terminal to interact with the PDP, mount various disc images and boot a range of operating systems from the proprietary DEC PDP-type to UNIX 5th, 6th and 7th Editions. A release version of the software is expected some time in the 1st quarter of this year.

If you are interested in the project, please contact Dr Francis Douse via e-mail: riscpdp@fgm.8m.com. His Web site is at: http://www.fgm.8m.com

RiscStation down under

RiscStation Ltd recently held a Resellers Workshop in Melbourne, Australia and reported that it was a spectacular success. Gareth Simpson was on hand to field enquires from local resellers about the new RiscStation family, which has also just started shipping in the UK. The R7500Lite and NetWORX were demonstrated to an enthusiastic audience.

Incidentally, a guide to Australasian resellers can be found on the RiscStation (Australia) Web site at: http://www.riscstation.com.au/resellers/local.htm. RiscStation (Australasia) Pty Ltd, tel: +61 3 9440 6077, fax: +61 3 9458 3488, e-mail: sales@riscstation. com.au

Simplifying Linux

Chris Rutter feels that getting a GUI-based ARM Linux installation going successfully can be too difficult, especially if you're not experienced in this area. The problem is that there isn't enough help easily to hand. To provide some sort of partial solution to this apparent problem, Chris has created a mailing list comprising ARM Linux experts all waiting to answer the questions from people who haven't yet found a place to ask them. The list can be found at http://www.armlinux.org/cgi-bin/mailman/listinfo/armlinux-newbie and it should be mirrored elsewhere on the Net in due course. Chris can be contacted via e-mail: chris@fluff.org

Following the market

A flurry of development activity has spawned several releases of the freeware stock portfolio program *Stocks*. Perhaps the author, electronics engineer Peter Rockell, needed more assistance in tracking his ARM and Psion shares, who knows? Anyway, version 1.13 is now available for download from http://www.magrathea.freeuk.com/softwr.html

Stocks allows you to keep an eye on your share stocks through a simple user interface. Its features include: the ability to monitor up to 15 stocks per portfolio file; a simple stop-loss price warning system to help you avoid losing money; tracking of your share purchase fund; display of the break-even price for each stock; dividend payment functions; scrip shares support; share split support; display of your portfolio's total value; international monetary symbols; configurable 'auto-load' portfolio; and auto-storage directory opening options.

On top of that, it only takes 64k of memory and it's RISC OS 4 ready. Pete Rockell can be contacted via e-mail at: pete@magrathea.freeuk.com Web: www.magrathea.freeuk.com

RISC OS OCR

A new freeware OCR program is under development for RISC OS. Produced by Munich-based Mark Beerling, his program STRing takes monochrome sprites and detects text character patterns and outputs the results as a text file. Mark indicates STRing is still in the early stages of development, but it already works quite well, being fast and fairly accurate. If you'd like to try it out, you can download STRing from http://www.arcsite.de/hp/mrb/

Contacting me

Ian Burley:
news@acornuser.com



Club news

We often get information about future club meetings, but because of printing lead times, that information would mostly be out of date by the time the magazine reached you, the reader. This month, however, we have news from a couple of clubs well in advance of their future meetings.

If your club is able to provide details of special attractions at least a month in advance of the event itself, it's well worth contacting us via the news e-mail address: news@acornuser.com

Derbyshire Acorn Risc Club (DARC) meetings are held at 7:30pm on the second Monday of every month, except August, at Duffield Parish Hall St. Alkmunds Church, Duffield, Derbyshire. The club recently bought a data projector, so now everyone has a brilliant view of on-screen demos.

On 14th February they get a visit from the RISC OS 4 Roadshow and on 13th March, Cerilica's Nicholas van der Walle will be the star guest. For more information on DARC, go to Web page http://homepages.enterprise.net/julianp/darc/

AcornSite goes 8-bit

Depending on whose century rules you use, we've just passed from one millennium to the next. It's a time to get all reflective and remember the good old days, of Atoms, Electrons and Beebs. This could explain why the AcornSite Web site has decided to open a dedicated area for those interested in 8-bit Acorn antiquity software.

If that's not enough, it will also feature software for Sinclair and Commodore 8-bit computers. Andrew Poole, who is behind the 8-bit area, is currently looking for decent pictures of these various 8-bit computers. If you have something to contribute, please contact him via 8bit@malpasroad.freeserve.co.uk.

Minor update to Compo

An update from Compo 1.15 to 1.16 is now available from the Clares Web site. It's only of use if you have upgraded your Compo to version 1.15, or if you have bought Compo 1.15 as new. If your version of Compo is at least 1.15 and dated prior to 6th Dec 1999, Clares urges you download the update. The main difference is that version 1.16 contains a new type of mask.

There is also a new texture map and a few other changes. The version 1.16 update will not update versions prior to 1.15. Clares Micro Supplies, tel: 01606 833999, Web: http://www.claresmicro.com

In brief

What's in a name?

Rename is a utility by Nick Roberts which is a smart bulk file renamer, using Edit-like wildcard syntax. Version 2.02 of Rename is now available for download. This corrects a bug that could cause a crash when dragging files to the Rename iconbar icon. The problem was aggravated by the introduction of RISC OS 4 long file names.

To download Rename, check out http://www.argonet.co.uk/users/tigger/ Nick Roberts can be contacted via e-mail: tigger@argonet.co.uk

Nowhere to hide

RISC OS users now have a new file location program called TrackDown, from Laurie Tratt. He describes it as a utility to find "lost" files, or to pick out a group of files with interesting properties, in a set of directories based on any combination of its file name, file contents, file type or file size in a similar vein to programs such as FileFind. It's about twice as fast as FileFind, but the software isn't really finished yet. However, it's available as a download for the brave from: http://eh.org/~laurie/comp/acorn/trackdown/. Laurie can also be e-mailed at tratt@dcs.kcl.ac.uk

ICQ for RISC OS

Its gestation took six months, but AcornICQ version 0.17 is now available. ICQ is the free public Internet service which primarily acts as a directory of users and when you run an ICQ-compatible client program online, can indicate to other ICQ users (selected or all) when you are online. It also lets you see other ICQ users' online status and you can send and receive short real-time messages to each other. Incidentally, ICQ means 'I seek you' – obvious, really.

AcornICQ's author, Angelo Melis, explains that version 0.17 is a major re-write over the previous release. However, there is still work to be done, including implementing ICQ online chat and file transfer. Angelo can be contacted via e-mail: angelo@kitt.nl AcornICQ 0.17 can, itself, be downloaded at http://www.vigay.com/riscos/icq/

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Unit 2A, Heapriding Business Park, Ford Street, Stockport, Cheshire SK3 OBT
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Account Manager Geraldine Wolstenholme
Finance Manager Charlie Moran
Subscription Manager Richard Siggee
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Space invaders

Recent announcements of unlimited Internet access tariffs and Telcos offering "always-on" broadband connections via ADSL and cable modems herald a new era of security problems for home computer users. In a recent discussion of the Acorn newsgroups, Nick Craig-Wood reminds us that cable modem users will very quickly find out that every man and his dog will try to break into their computers. Some firewall software or hardware is therefore essential.

Nick uses a Linux box as a gateway to the rest of his network with two ethernet cards in it to isolate the home machines from the cable network. It masquerades for his other machines by filtering requests from them and pretending to be the only machine in use behind the firewall, and also hosts the software. Most "always-on" service suppliers use a protocol called DHCP (Dynamic Host Configuration Protocol), which Acorn machines cannot currently handle.

DHCP actually 'leases' one IP address from a pool of addresses owned by the ISP for as long as the connecting machine stays online, or more usually after a fixed period of time which can be from a few minutes to a few hours, so the actual IP address allocated may vary. Although this means your machine is less easily hacked-into, it also means that it's virtually impossible to run a domain-named server such as Web server on a cable-modem or ADSL line. This is because a domain name must point to a fixed IP address.

Most cable ISPs contractually prohibit users from running servers anyway, because local area bandwidth resources will be reduced if your server is heavily used, and other users will get a slower service. To do this the ISP will require you to rent a leased line at a much higher cost.

May I have the next Samba?

Since I let down my guard and added a PC to my beloved Acorn setup, I have been alternately cursing and warming to the upstart intruder. I described my little home network earlier this year in the August Comms page, and one essential link is being provided by David Buxton's freeware *!SmbServer*, a *Samba Server* for RISC OS.

SmbServer enables any filing system and directory path of a RISC OS machine to be shared with Ethernet-connected PCs running *Windows 95/98* or *Unix/Linux* using the Microsoft File Sharing protocol or CIFS. In David Buxton's latest version of *!SmbServer*, RISC OS ten-character filenames are correctly shared and RISC OS 4 long filenames are supported. New configure options allow drive and printer shares and their network names to be specified and set up easily from the RISC OS desktop.

When viewed from Windows *Explorer*, Acorn files are shown with optional RISC OS filetype name extensions, and all my Risc PC disc drives are accessible from the PC and vice versa. I was amazed to find that *SmbServer* also allows me to print documents from Windows programs through to my Epson printer connected only to my Risc PC.


If you can bear to look, this is how SmbServer shows itself

Combining *Omniclient* from the Acorn *Browse* or Java CD releases and/or Warm Silence's *LanMan98* with *SmbServer* gives full bi-directional file and printer sharing between RISC OS and Windows 98. *LanMan98* even lets me transparently save RISC OS files to the CD writer in my PC and actually run Acorn applications from a PC-borne CD-R or CD/RW disc. *SmbServer* includes an illustrated HTML manual which explains the simple configuration of both Acorn and Windows machines. Thanks to *SmbServer*, the intuitive RISC OS human interface I know and love has become infinitely expandable.

!SmbServer
http://www.merddin.demon.co.uk

In brief

Unmetered but not free

BT's long-awaited unmetered Internet access tariffs have been announced, but we'll have to wait a bit longer to enjoy them. If approved by Oftel the four-option BT *Surftime* service will start in the Spring.

The proposed monthly charges for unmetered access are £34.99 for 24/7 access, £26.99 for weekday daytime-only Internet calls and £6.99 for evenings and weekends, or evening and night-time access. ISPs will offer the service on a new 0808 number range. The Campaign for Unmetered Telecommunications (CUT http://www.unmetered.org.uk/) are cautiously optimistic.

What is whatis.com

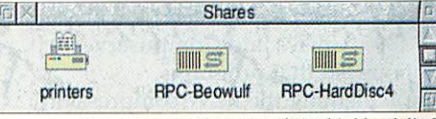
If you can't remember the meaning of technical terms from AGP to ZIF, then whatis.com can help you. whatis is a searchable database of information technology containing over 2000 encyclopaedic definitions and topics especially about the Internet and computers. The topics contain about 12,000 links and cross-references to other sites for further information including book selections.

Special sections include "How the Internet Works" and their "Creating a Web Site" HTML 4.0 tutorial. WhatIs does know what a RISC processor is, but could someone please send them an entry for RISC OS (perhaps RISC OS Ltd should do it)?

whatis.com
http://www.whatis.com/

Contacting AU

David Dade:
comms@acornuser.com



Can you guess the name of my third hard disc?

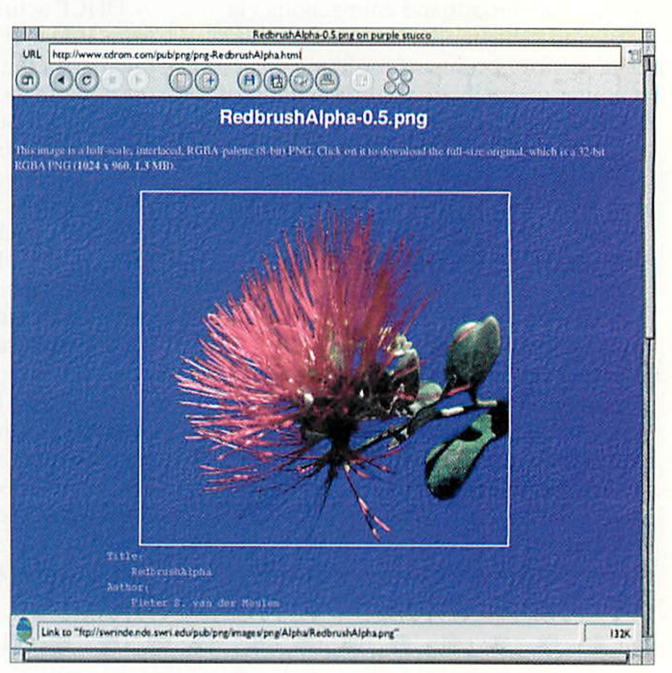
In praise of PNG

Web images tend to come in two main flavours: GIFs and JPEGs. For some time, a third format has been edging its way into common acceptance: PNG. PNG stands, officially, for *Portable Network Graphic*, and unofficially for *PNG's Not GIF* – one of those beautiful self-referencing acronyms like *GNU's Not Unix* of which many stateside hackers are so fond).

We've had by far the best browser support for PNG since the release of *Browse*: indeed the official PNG homepage cites *Browse* as being "the only released browser with full, flawless support". But until very recently, it was difficult to create PNGs that made use of the full range of options available under the format, using RISC OS. John Kortink's shareware *Creator* is capable of translating many image formats into PNG, and Darren Salt's *Spr2Png* allows simple creation of PNGs from Sprite files.

The latest release of Clares' *Composition* can also read and write PNGs – the first fully-fledged graphics application on the platform to offer this feature, and the first to allow easy exploitation of all the good things that PNG has to offer. And what might they be? Like JPEG, PNG compresses the image file so that it takes up less room on a hard disk, or uses less time to travel across an Internet connection. JPEG, however, is a "lossy" compression format, that results in the image losing some of its quality as a price for the compression. PNG is "lossless" – the compression retains all of the original information in the file. This does mean, however, that PNG files are still generally larger than JPEGs, and for photographic images, JPEG is still king of the hill.

Instead, it's primarily GIF that's under attack from the new kid. GIF also uses a compression routine – LZW – which is patented by Unisys. In 1995, Unisys and Compuserve announced that programs implementing the LZW compression routine would require royalties to be paid – and, partly because of this very issue was PNG born. PNG compression is generally around 5% to 25% better than GIF, and the format can handle a much greater number of colours within a single image. GIF is restricted to 256 colours (it can use less, which is sometimes worth remembering) and JPEG offers either grayscale or truecolour (16 million colours). PNG images may be created in any of the three flavours.



GIFs allow a rudimentary kind of transparency, in much the same way as a Sprite mask: a pixel is either fully transparent or fully opaque. PNGs use transparency in a similar way to TIFF images: a full alpha channel, whereby an image can have wide variations in opacity. This allows for smooth edges without having to anti-alias to a precise background colour, or for effects such as perfect drop shadows onto a textured background – both extremely useful for Web designs, and probably one of the strongest weapons in the PNG arsenal.

Many GIFs and some JPEGs make use of progressive rendering onto the screen, where a blurred version of the image is initially displayed, which gradually acquires more detail as the image downloads. This interlacing is performed by GIF in one direction – detail is added horizontally, where an image mid-download tends to be more detailed at the top than the bottom. JPEGs, where they are saved as interlaced images, gather detail in both directions at once, and PNG's progressive rendering appears this way, gathering detail in a much steadier manner than GIF.

Lastly, PNG uses a form of gamma correction for images. Often, images created on RISC OS look too pale on a Macintosh, and possibly a little too pale on a PC – and vice versa. PNG attempts to compensate for this by storing gamma information within the image.

Unlike GIF, however, PNG doesn't support animation in any form, although a variant of PNG for animation (MNG) is currently being developed. It remains to be seen whether that format gains any purchase in browser support, or user acceptance. Although the situation is improving, support for PNG has been slow on the uptake, and partial in practice (*Netscape* doesn't support PNG's alpha channels at all, and *Internet Explorer* treats them in much the same was as masks in a Sprite file, assigning a threshold to opacity – *Fresco* behaves in a similar way).

PNG support in other graphics applications, such as *Photodesk*, would be extremely good news, but support in *Composition* for the format means that RISC OS is still one of the leaders in the field.



Ottens' dutch designs

Continuing our mini-series on professional graphic designers making use of the RISC OS platform, we spoke to Maarten and Steven Ottens, proprietors of the comparatively new agency, *Ottens' dutch designs* (*O'dd* for short).

The brothers' route into professional design began through a skilled amateur interest in creating designs for school clubs. At University, a friend of Maarten's requested a corporate identity for his own fledgeling business, and persuaded him to start up his own company. Maarten contacted his brother, and a week later their company was formed, offering graphic design and Web site development internationally.

Their working methods involve the computer typically only at the last stages. Once a contract is won, they spend time interviewing their new client, developing a familiarity with the client's company, products, services and position towards existing and potential customers. Armed with this knowledge, the creative work begins: "using a sketchbook and a pencil we spend our journeys through the country developing ideas. Most of the time the idea is the difficult part – although sometimes the client is, changing their requirements after the first interview."

Once these ideas have developed, they are translated from sketch form onto the computer, typically with either *Artworks* or a pre-release version of *Vantage*. The best idea from the crop is then presented to their client, with explanations and commentary: "here we use the Internet a lot. Most of our customers we only see one time in the first interview. We discuss the designs by e-mail, and sometimes when things aren't clear or more people are involved, we visit our clients more often."

Having settled on a strategy with their clients, the project is then worked through to completion. The brothers find that for straightforward graphical tasks such as logo designs, there may not be a great deal of change from the developed idea through to the finished product – but where the project is a Web site, the transformation from vector sketch to fully-functional site is a much greater task, which is only accented by the company's rigorous adherence to valid HTML through hand-coded work.

As has been the case for the other participants in this series thus far, both Maarten and Steven are most comfortable using vector programs to create their graphical work, using *Artworks* or *Vantage* almost exclusively for their first designs, involving other programs only at a later stage. They use *Zap* for their HTML editing, *Creator* and *Intergif* for bitmap translation, and occasionally involve *Ovation Pro*, *Photodesk*, *RiScript Pro* and an assortment of invaluable freeware programs. Aside from two Risc PCs and an old A5000, the brothers also make use of a PC running both Linux and Windows.

For Maarten and Steven, the attraction of RISC OS centres around the control it provides over the machine. The transparency of the OS and filing system, combined with the resilience of the system allow for a much more pleasant workflow, and "wonderful standards like drawfiles assure in-platform compatibility. We tend to use several (about 20 to 40) applications next to each other and drag and drop from one in the other all the time." The Acorn community is also an attraction – the user base is notoriously helpful, and there is very often a very short path between programmer and user.

An ideal future for O'dd and RISC OS involves the continuous development of key applications. *Vantage* and *Ovation Pro* answer many of their needs, and an applets system modelled on Ovation's would benefit *Photodesk* immensely, as would the support of vector-based masking and text editing. Improvements to what is currently a designers' nightmare of PostScript support on the platform is also a high priority for the agency, as is support for newer Internet technologies such as Shockwave.

And, in common with probably all designers using the platform, the Millipede's *Imago* motherboard remains the jackpot, with a modern RISC OS laptop running a close second.

Contacting AU

Paul Vigay:
graphics@acornuser.com



ChartDraw

Quite often I stumble across interesting PD and Shareware software while hunting around the Web for an application to suit a particular need of my own.

This month I wanted to create a simple graph of some data I had collected. Only wanting a simple graphical output, either as a bit map or a drawfile meant that using a sophisticated full-blown application such as *Pipedream* or *Eureka* was like using a hammer to crack a nut – so I headed for the Internet to see if I could find a smaller application to suit my needs. A few minutes later and I had discovered the ideal solution: *ChartDraw* by Chris Johnson is a shareware application offering the creation of a range of charts, produced by entering some data from the keyboard.

Ions

Data Set Descriptor: Ionisation energies of the elements

Labels	1st I.E. kJ/mol	2nd I.E. kJ/mol	3rd I.E. kJ/mol	
H	1310			
He	2370	5200		
Li	520	7300	11800	
Be	900	1800	14800	
B	800	2400	3700	
C	1090	2400	4600	
N	1400	2900	4600	
O	1310	3400	5300	
F	1680	3400	6000	
Ne	2080	4000	6100	
Na	500	4600	6900	
Mg	740	1500	7700	
Al	580	1800	2700	
Si	790	1600	3200	
P	1010	1900	2900	
S	1000	2300	3400	
Cl	1260	2300	3800	
Ar	1520	2700	3900	
K	420	3100	4400	
Ca	590	1100	4900	
Sc	630	1200	2400	
Ti	660	1300	2700	
V	650	1400	2800	
Cr	650	1600	3000	
Mn	720	1500	3300	
Fe	760	1600	3000	
Co	760	1600	3200	
Ni	740	1800	3400	
Cu	750	2000	3600	
Zn	910	1700	3800	

Figure I: Ionisation energies of the elements

Figure I shows the initial data entry window, with one of the example files loaded.

On loading *ChartDraw* you are given a simple spreadsheet display showing up to 5 columns and 30 rows. It's then a simple matter of entering the data you want to plot. Figure I shows the initial data entry window, with one of the example files loaded.

Once your data is entered you can select from a range of different graphs, depending upon how you want to view your data. You can choose from pie charts, line graphs and bar charts, with the lines and bars, optionally stacked.

Select the one you want from the menu and the relevant chart will be drawn. It's as simple as that. Figure II shows an example line graph produced from the data above.

ChartDraw doesn't have a huge range of options – mainly just allowing you to edit the axis ranges and labels. However, one of the most useful, and valuable, features is the ability to output any chart as a drawfile.

This feature allows you to subsequently transfer your finished

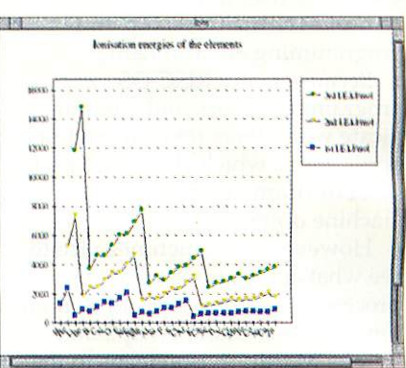


Figure II: Line graphs produced from the data in Figure I

graph into *Draw* for subsequent colour or line changes and 'cosmetic tweaks'.

ChartDraw is a nice little application which performs a complex task quickly and efficiently. It's available to download from Chris' Web site at http://avogadro.che.hw.ac.uk/~soft/graph.html

Visitors to his Web site will also find a number of other useful chart drawing applications.

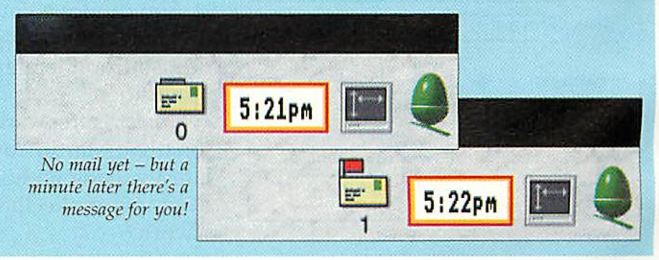
Corrections

There were a couple of URL typos that crept into last month's issue: *Megumi* is available at: http://www.os.rim.or.jp/~siram/megumi.html and *DrawPersp* is available at: http://www.users.zetnet.co.uk/rjseago/pdsoft.htm

POPCheck

This handy Internet-orientated utility is the latest offering from Richard Goodwin. This time it provides a quick and simple way of checking to see if you have any messages waiting in your POP3 mailbox.

POPCheck is designed to work in conjunction with your existing e-mail fetching application and merely sits on your icon bar quietly monitoring your remote mailbox every five minutes for any activity. If you have any waiting mail messages, *POPCheck* will alert you to the fact by issuing a high pitched bleep and popping up a little red flag on the icon bar. You can then use your existing e-mail software to actually transfer and read the new messages. *POPCheck* comes with installation instructions, but it's really just a case of filling in your mailbox information into a choices window and clicking OK. After that, it sits quietly on your iconbar. As I write this, *POPCheck* is currently in a beta stage, but by the time this issue hits your doormat it should be ready to download from http://www.goodwin.uk.com/richard/programs/



No mail yet – but a minute later there's a message for you!

TaskUsage

One of the beauties of RISC OS is how smoothly applications interact to swap data via drag and drop, or to enable the user to have seamless control over their desktop and programming environment.

Because many RISC OS programmers work and communicate with others there are not many applications which clash with each other or dramatically slow the machine down.

However, it's sometimes nice to see what applications are being processor hungry or spending more time in a loop than perhaps they should. Martin Avison leaps to the rescue here and produced a great little application that monitors your desktop and gives you an interactive display of which tasks are using the most processor time. This not only provides idle users with a way of watching what their machine is getting up to, but also helps programmers to optimise their own applications in order to gain that extra bit of efficiency – and I know I've used *TaskUsage* for just this purpose myself.

TaskUsage's functionality is two fold; Firstly it provides a small scrolling display of processor load on the icon bar. This gives a quick and immediate feedback, in the form of a bar graph, of how busy your machine currently is.

Secondly, clicking on its icon opens the main status window (below). This is organised very much like the normal RISC OS task display and shows you how efficient each individual application is.

As you can see from my machine, I'm using just under half the available processor time, of which Impression *Publisher* (in which I'm typing this) is occupying the most.

A well-designed application would ideally use 0% of the processor when it's not in use (just sitting patiently on the icon bar). Some applications may use a small amount (if, like *ECS Utils*, they sit in the background monitoring the desktop anyway). By masking out certain Wimp calls, programmers can visually see the effect of any changes, and the end user should get an application which is as efficient as possible – which is a double-bonus for an operating system as efficient as RISC OS in the first place.

TaskUsage has a number of configuration options so that you can tailor the interactive bar graph display to your own liking and also view the amount of time taken by various wimp processes themselves. An essential utility if you want to make sure that your computer is as efficient as possible. You can download a copy from http://www.avisoft.force9.co.uk/TaskUsage.htm

Task Processor Usage

Total Processor Usage	47 %
All Application Tasks	44 %
Pinboard	0 %
IshClock	0 %
MoonTool	0 %
WimpBar 2	0 %
Organizer	0 %
InetSuite	0 %
AntUtils	0 %
Marcel	0 %
Internet Server	0 %
Zap	0 %
Impression Publisher	40 %
TaskUsage Config	0 %
ECS Utils Vr 2.34	4 %
All Module Tasks	2 %
Task Manager	0 %
Filer	0 %
ADFS Filer	0 %
Resource Filer	0 %
CDFS Filer	0 %
ShareFS	0 %
IDEFS Filer	0 %
Free	0 %
Display Manager	0 %
VProtect	0 %
Menon	1 %
Out to Lunch	0 %
ArcPPP Module	0 %
RAMFS Filer	0 %
Task Usage	1 %

Detailed feedback on processor usage

Contacting AU

Paul Vigay:
pdpage@acornuser.com

Finder

While hunting around for a nice simple BT dialling code finder I discovered this little application, which has now become one of my essential utilities. However, *Finder* offers more than just a searchable list of dialling codes. It's probably best described as a "list manager" because it contains a selection of other elusive lists.

Indeed, you can even add your own lists to the database so that it can be a central repository for quickly looking things up. The initial data set contains radio callsigns, pre-PhoneDay BT codes, current dialling codes, international dialling codes, internet domain names, UK vehicle index marks, international vehicle plates, UK postal codes and USA zip codes. The neat thing about *Finder* is that it's designed to be as flexible as possible, yet the search window is as uncluttered as possible.

The various user-configurable options are stored within the relevant datafile so that the search window can automatically update the various choices to reflect the type of data being searched.

Probably the most useful list is that of the UK dialling codes. Once this list is chosen, the search window changes to that shown below. As you can see, the user can toggle between searching for the dialling code or place name, by clicking on the relevant icon on the left of the window. One data list which intrigued me is the one that lets you search for internet domain names. You need never be left pondering as to where that obscure overseas e-mail address is located any more.

Simply change the data list to domain names and the dialling code and place name toggle icons change to domain name and country icons. You can then use the same window to search for the unknown suffix.

You can save your results as a text file so you can print them out or just drop them into another application.

Finder is freeware and written by Jonathan Martin You can find the latest version on his web page at http://www.keelhaul.demon.co.uk/acorn/



Searching for my own dialling code –



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Have you heard about this new magazine *RISC World* published by APDL? It's on a CD.

Silly idea if you ask me. Who's got a CD-ROM drive anyway?

Well, you and I have for a start. So do most people with RISC OS computers now.

S'pose so. But if it's on a CD I bet it'll be full of old demos, out of date games and stuff like that.

No, it's a proper magazine, it's just on a CD 'cos that keeps the price down now printing and postage costs so much. And on a CD articles and reviews can be bigger and more detailed with lots of screenshots and stuff without adding to the price. With a printed mag – especially if it's in colour – the more pages, the more it costs to print and distribute.

But it's bi-monthly, not monthly like the others. By the time we get it the news will be out of date.

So when did you last get the hot news from a magazine? You get it from the Internet, then see the mags to find out more and read the reviews later. With most mags, by the time you read it it's months out of date anyway, so six big issues a year instead of twelve little ones makes sense.

I suppose so, but if it's being published by APDL it's probably going to be full of articles about them and all the stuff they do and anything competing won't get mentioned.

I doubt it. It's completely separate from APDL, with its own editor, David Matthewman. He knows what he's doing and won't let APDL interfere. APDL are just putting up the money and sending out the CDs. Daft, if you ask me. I don't see how they can do it for only £17.90 a year. They'll probably lose a fortune. Who needs another magazine, even if it has got lots of new ideas and is much cheaper than anything else? Anyway, I'm not giving up my *Acorn User* subscription.

No chance, neither am I. But are you going to get RISC World?

Already sent off my money. Can't wait. At that price, I can afford both.

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DataSafe is highly praised, but there's been one criticism. People would like it smaller and lighter so carrying between home and office (or school) is even easier. So we've introduced the DataSafe 'mini'. With all the features of the standard version, this uses a 2.5" drive so it's very small, about 5" by 5" and less than 2" high, and weighing only about 14 ounces! Prices start at £109 without a drive or with a 1.8 Gb drive just £189

Keeping P with tec

The name Pace, or to give its full title: Pace Micro Technology PLC, has been in the headlines recently for its purchase of Acorn and the RISC OS. The implications of this are not immediately obvious but it is understood that Pace are looking at how it might be used in future (non-computer) products. Meanwhile its development for our beloved computer is licensed to RISCOS Ltd whose work is well documented in magazines and on the Internet.

So what about Pace? Exactly who are they and what do they actually do? Those of us who have been involved with Acorn computers since the very early BBC Micro days almost two decades ago will have encountered the name of Pace. Since those days, its rise has been meteoric to say the least. The "fall" part of the title is the falling by the wayside (so to speak) of various product lines to make way for newer developing technology now centered around digital television set-top boxes.

A document called The Corporate History of Pace simply says: "1982 Pace was founded" and swiftly jumps on to two almost insignificant entries for 1985 and 1987. It is not until the early '90's that the history fleshes out with more details as to what the company is doing and where it is going in the (then) fast developing satellite TV market.

The early years

Let me fill you in on those early years when Pace started life in 1982 as a one man enterprise in David Hood's back bedroom in Lidget Green, a suburb of Bradford in West Yorkshire. In those days Pace were involved in selling 5.25in floppy disc drives and accessories for the fast up-and-coming BBC Micros and later the BBC Master 128 series.

By 1984 Pace had premises in the old Bowling district of Bradford and advertised profusely in the Acorn magazines of the time. For example, in the December 1984 issue of *The Micro User* three full pages (and there were a mere 242 pages in that issue) proudly proclaimed the merits of their products for the BBC Micro platform: the 'Grapevine' and 'Nightingale' modems which boasted the new Viewdata speeds of 1200/75 baud alongside its 300/300 baud full duplex (compare that with today's 56k standard) and supplied with 'Commstar' comms software for around £160 for what was then a state-of-the-art package.

In *The Micro User* March 1984 the Pace range of 5.25in floppy disc drives were advertised at prices ranging from the simplest 40-track single sided (100k using Acorn's DFS) at £212 to the flagship 40/80-track double sided (800k) dual drive at a mere £665. Pace also had a brief foray into cassette and disc games for the BBC micro with the explosive 'Fortress'.

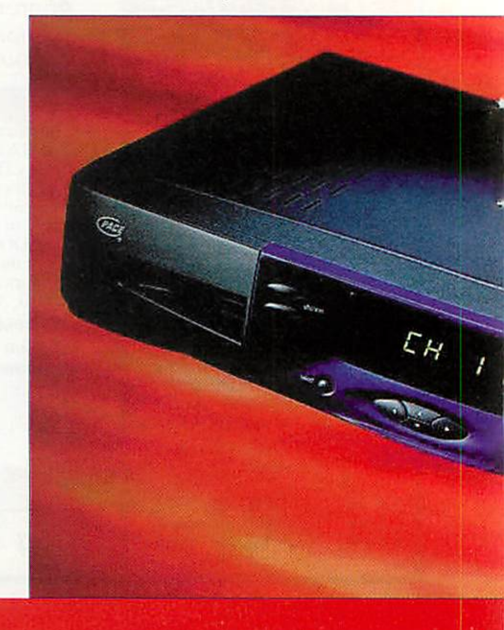
The Corporate History charts the pinnacle of achievement (in fact, the only one) of 1985 to be the introduction of the of the first low cost commercially available 'Nightingale' modem, yet they had been advertising them in *The Micro User* a year earlier – maybe the Pace early history is too insignificant to be documented accurately.

Pace with their BBC Micro support were to be seen at the BBC Micro User Shows at the Renold Building of UMIST in Manchester where I and other anoraks gathered to wonder at these new products.

Many older Beeb enthusiasts like me would have got their first experience of comms, which in those days was considered something of a black art, via *The Micro User*'s promotion of a modem and simple software (from the *Mini Office* suite) to access Prestel Microlink or contact Bulletin Boards or any other Viewdata provider. These modems were a re-badged version of the early Pace Linnet 1200 model. In June 1986, with the BBC Master 128 firmly established, *The Micro User* announced that agreement had been reached between Pace Micro Technology and Acorn to produce the official internal modem at an expected cost of around £150.

Things looking up

Pace later moved to more suitable modern premises in the Allerton district of Bradford with a main road location. On one of my visits I noted huge white satellite dishes on the roof looking up to the heavens and was told they were developing something new. It was 1987 which saw this change of direction as Pace introduced their first satellite receiver and continued into the 90s with this market alongside its expanding modem range. The disc drives and other bits from the BBC days just faded into obscurity. Yet another move



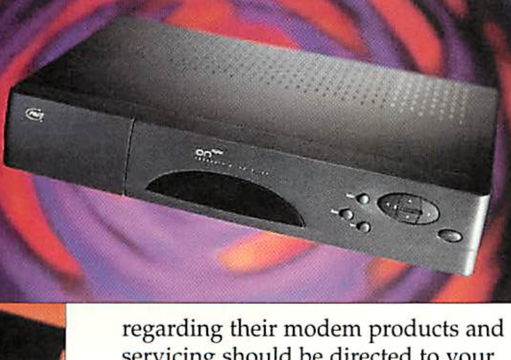
ace hnology

Colin Sutton looks at the rise, fall and rise of Pace

for Pace as they took up occupancy of the (now) prestigious Salt's Mill complex in the historic village of Saltaire just north of Bradford. The mill and village adjacent to the River Aire and named after its builder, Titus Salt, later knighted for his work.

With stunning regularity during the 90s, Pace signed contracts with one broadcaster or cable operator after another around the world for the supply of its set-top boxes for both analogue and latterly digital services. The Corporate History in this area is detailed and impressive.

In October 1996, the Prince of Wales and myself visited the Salt's Mills (at different times and for different reasons, you understand) where Pace is situated and HRH toured the Pace facilities. The mill complex was restored by the late Jonathan Silver and also houses the country's largest collection of artwork by David Hockney (another Bradford lad) in the 1853 Gallery which can also boast having a rather overworked fax machine. Some of Hockney's work is faxed from his studio in Los Angeles. Pace now have a prominent presence in what has fast become a tourist hot-spot.



Gone off-line!

With all the emphasis on set-top boxes for the TV industry, the modem side of things was beginning to take a back seat. A new company PMC Electronics was formed as the result of a management buy-out to deal with the modem market popular with Acorn/RISC OS and PC users for many years.

Sadly, this small company was placed into receivership on 5th August 1999. This meant that all queries regarding their modem products and servicing should be directed to your local supplier and trading enquiries should be dealt with by the Receiver, KPMG at their Nottingham office – a full statement is on the cover disc.

I gather some enthusiasts are temporarily off-line until their modems being repaired have been sorted by the Receiver. I suspect we shall eventually see a flood of surplus modems offered in the cut-price marketplace. That most efficient rumour mill, the newsgroup comp.sys.acorn.misc had a thread "Pace go bust!" which was never quite answered before it went off topic. It is only PMC who are affected and the mightier Pace Micro Technology PLC are still alive and well – in fact, doing very nicely.

The future

The Company's success and rapid growth is credited to the triumvirate who ran Pace until they went public in 1996. Founder, David Hood was joined by Barry Rubery and Robert Flemming who together invested much time, money and ingenuity in the new state-of-the-art electronics.

Employees have grown from 30 in 1985 to around 1000 today and Pace reckons that in the next few years they will be manufacturing some 25 million set-top boxes for digital TV. Last year Pace had a turnover of almost £220 million while the buying-up of the remnants of Acorn cost them less than a quarter of a million.

Latest technology is the XTV set-top box with integrated twin tuners taking television streams and a 15Gb hard disc allowing for up to 8 hours of programme storage at a broadcast quality not normally experienced on tape-based video recorders. The new XTV STB supports the same commands as the VCRs and is just the tip of the iceberg for hard disc technology within a set-top box. It is to be shown at the London ECC 99 exhibition in November.

As these notes are about to be e-mailed (end Oct) to *Acorn User*, news is released of a Pace deal with California-based Cisco Systems to develop new products to deliver interactive technology though the air instead of using cable for which benefits include speedier internet access and reduction in cost of interactive equipment.

Other partners in this Cisco project include Motorola, Samsung and Toshiba. The local press report that Pace "saw its share price shoot through the roof today". The continuing Bradford connection mentioned earlier makes Pace a valuable asset to the city.

So, Pace have ended up with buying the Acorn company they originally supported at its foundation. The future is good – the future is definitely digital but how that might affect RISC OS users still remains to be be seen. Clearly Pace is a company to watch closely with interest.

The Pace web site is at: http://www.pacemicro.com

END

I, Mico

Steve Turnbull looks at the dark horse of the RISC OS race

MicroDigital is not a famous name in the RISC OS market although it does have claim to the title of the first manufacturer of a RISC OS clone – the Medi which graced the pages of *Acorn User*, before the long overdue departure of Acorn from the scene.

It had been with Acorn's, grudging, blessing that the Medi had been designed around the A7000 board – Acorn wouldn't allow any variant board design – and the disappearance of Acorn, with the ensuing months of confusion, meant Medi never saw production.

But the emergence of RISCOS Ltd and its licence to develop the operating system gave MicroDigital the opportunity to develop the machines that it had always wanted to do.

In my early meetings with MicroDigital's front-man, David Atkins, he described the detailed research he and his team had done looking at the machines that people in education really wanted to have – some people had scoffed at the small harddisc the Medi had been given, yet in education, given that we were talking RISC OS-sized programs just how much space did you really need?

But the Medi is history – though valuable in terms of development experience – and MicroDigital is now able to express itself in the way that the company's philosophy and research dictates.

The company's business philosophy is to meet the consumer's expectancy within the constraints of the golden rules, design to cost and never let the customer's expectancy get ahead of your products in any one particular market. But the most important rule is never discuss any product that isn't available now and on the shelf.

The Mico itself has been somewhat pre-announced ("the exception that proves the rule" says David) because of the desire and need to put some hope back into a battered market which must be stabilised and then enlarged before the lower cost machines can properly emerge.

The machine

For the Mico MicroDigital have bought together the three main technologies from Apple, ARM and PC to give the RISC OS user access to lower cost peripherals – though significantly lower cost machines still await a hardware independent operating system and a bigger market.

The Mico computers have been working since the week after the Wakefield 99 show in May – when RISC OS 4 became available, we first saw an operating machine at the *Acorn User* office shortly after that. The PCB design has since gone through three further iterations to reach the production design – the first working motherboard is only the beginning. Designing a PCB capable of being manufactured in high volumes is a completely different story, that has taken months of hard work and product testing.

MicroDigital see the Mico as a latter day BBC B. Ever since the BBC model B, ease of use and expansion have been the watch words and MicroDigital has incorporated not one but two expansion buses from the Apple and PC markets, ISA and USB, while introducing a new high-speed MicroBus, which can, via an adaptor, run existing Acorn podule bus expansion cards.

ISA is by PC standards (anything over twelve months being considered by some as obsolete) a very old system but, more importantly, it's still heavily supported by the PC add-in card manufacturers which gives the Mico user access to low-cost PC cards. MicroDigital have drivers for a 56K modem, ISDN adaptor and a 10Mb Ethernet card with 10base2 and 10baseT connectors.

On the other hand USB is brand-



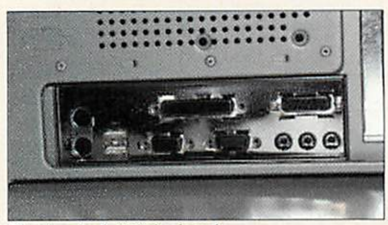
spanking new and is likely to become very important to all markets – Apple's popular *iMac* has USB support for all its peripherals – but what you might call a peripheral, and what USB calls a peripheral aren't quite the same. Printers and scanners are obviously "peripherals" but to USB the mouse and keyboard are as well.

USB is a general purpose method of connecting peripherals which is conceptually similar to SCSI but it is a serial connection not parallel (USB stands simply for Universal Serial Bus). If you've been reading Mike Cook's One Wire Bus articles you'll get the idea (though they aren't the same thing), you have a network of devices which can be added and removed while the machine stays switched on, the software automatically registers the presence of the device and loads up the correct driver to run it.

Of course, just as it will be for the ISA and PCI card standards, the key to it's success is the existence of device drivers: each type of peripheral must have a driver or it will not work, so the watch word here is RISC OS USB device driver standards. MicroDigital are in discussions with Andrew Rawnsley, technical director of RISCOS Ltd, to ensure that third parties have access to a driver standard so that all hardware designs and software drivers conform and work together.

Kiss of death

Then there's the MicroBus: a proprietary bus design. Uh oh, the kiss of death of many a computer manufacturer has been the implementation of its own bus – which no one else then supports so the machine (and sometimes the



The standard ATX back-end

company) disappears.

MicroDigital have an answer: The previous paragraph would normally be true however, for better or worse, the RISC OS world already has a proprietary bus design which is very slow by modern standards. The MicroBus is twice as fast and has the important advantage of being able to run the old design podule cards via a low cost adaptor. So if you need to use an older card, you can; and if a company wants to design a card that will fit older machines, they can, and can also expect far higher performance. The MicroBus provides an important bridge from the old to the new.

Getting down to it

Mico has two high speed EIDE interfaces supporting up to four devices, which are capable of transferring data, from it's 6.4Gb hard disc drive, at 9Mb/sec sustained and 3.5Mb/sec from the CD ROM drive. These figures can be almost doubled, in the case of the hard disc drives, by using larger capacity, faster units.

The harddisc software allows each physical disc to be split into a maximum of eight partitions, each of which can be allocated either Read Only, Read/Write or No Access status, each with password protection. These features are a real asset when it comes to hard disc management in any environment where more than one user has access to the computer, after all one person's data/application is another's scrap file which can be deleted for whatever reason.

The Mico has a 16-bit sound system with hardware wavetable synthesizer with MPC-3 compliant mixer on input and output channels. Full duplex enhanced stereo, MIDI controller with 32 note polyphony and independent reverb of chorus levels on each channel.

Typical screen modes include: 800 x 600 x 32 thousand colours, 1024 x 768 x 256 colours and 1280 x 1024 x 256 colours. Like other ARM7500FE-based machines the Mico is capable of higher modes at the expense of the processor's bandwidth: the higher the mode and number of colours the slower the system runs.

All systems have 16Mb of EDO memory as standard, maximum 256Mb via two SIMM sockets.

The RISC OS 4 is exactly the same as the version shipped by RISCOS Ltd for existing Acorn-badged machines, so there are no compatibility problems. The operating system is held in 4 x 1Mb Flash ROM chips so, if and when, the day comes to upgrade to another flavour of RISC OS you can upgrade your computer without even taking the lid off.

Mico ships with a decent RISC OS keyboard, not a window in sight and the same three-button Logitech mouse as used by Acorn. In use the machine is very quiet as the fan runs at low speed in our temperate climate. Like the other new RISC OS machines Mico waits in stand-by mode when switched off so has a "soft" power button for starting up and shutting down. Build quality is an issue with RISC OS machines as we expect machines that continue to run regardless of what you do to them.

MicroDigital have their own Zero Defect Quality Assurance Programme, which means that the company has developed and will continue to develop procedures which endeavour to eliminate all faults prior to shipment to the end user.

In use

There are currently no standard – and agreed – performance tests for RISC OS machines and it's fairly difficult to accurately access performance. That said, some test results have shown that the Mico has an overall performance of 6 to 10 times faster than an A5000 and 2.5/4 times faster than a Risc PC 700.

In conclusion, MicroDigital's Mico looks sufficiently different to the RiscStation R7500 Lite to appeal to a separate type of customer. David Atkins is quick to assure us that they are after different market segments, and both are keen (and wise enough) to push into non-Acorn areas. This essentially means that they both know that the market as it stands, while invigorated by the launch of new hardware, must grow – and we're definitely in agreement there. END

Wot no PCI?

MicroDigital would have preferred to ship a machine with PCI and thoroughly investigated the possibility but, putting aside the issue of device drivers, the problems involved in terms of development time (both hardware and software), and the extra component costs would make the machine too expensive, probably twice the cost of the Mico.

Plus the fact that with the ARM7500FE it might not even have worked effectively. Anyone considering that level of investment in computer equipment would be far better off with a StrongARM RISC PC at this stage of the game.

Product details

Product:	Mico
Price:	from £499
Supplier:	Microdigital, 37 Titus Street, Saltaire, Shipley, West Yorkshire
Tel:	01274 618774
Fax:	01274 619482
Web:	www.microdigital.co.uk

China CD-

Where to begin? Two CDs, pretty much jam packed and far too big a task to cover in a page or two. But maybe I can give a flavour and explain why they are worth parting with a few pounds to put them in your collection.

First, the moral argument: These are charity discs so not only are they reasonably inexpensive, but the little you do pay is all going to a good cause: Mencap. So after the excesses of the festive season when you indulged yourself, now it's time to do your bit for others. Homily over, now why do you want them anyway?

CDs can take up to 650Mbytes of data. These two are almost full – and almost everything is compressed too! So you get a fair few bytes for your bucks. Of course, if this was Microsoft bloatware, that may not hold true but these discs are crammed with small files of potentially useful RISC OS goodies. Will they be of use to you? The odds are yes. It's hard to see how they wouldn't be.

Disc one is largely a collection of the contents of Web sites: effectively it gives you the chance to browse through the biggest and best RISC OS-related sites in the comfort of your own home, without the need for a Web browser (one is supplied) and without having to worry about how big a contribution you are making to your phone company's profits.

Net users will be familiar with the names having no doubt rummaged through their files before: HENSA, Cybervillage, Argonet, The ARM Club and Demon. (I guess Stuttgart was too big to fit on as well that's on Disc 2.) Also on the disc is a copy of *SparkPlug* to extract the files in case you don't have that, a *Welcome* text file with some background info and a directory containing lists of all the files in each of the directories on the disc.

On my (pre-release) copy those lists actually refer to the source drive on the authors computer but even if that stays the same for the release, ignoring the first part of the path information would still lead you to the file you want. For anyone who has browsed the Web, that might seem like a glib statement as to find something you first need to know what it is called and sometimes on the Web (HENSA was like this), files are labelled with unrelated codes rather than useful descriptive names. On the discs the files are given readable names so these lists can be useful.

For example load the HENSA list into *Edit*, press F4, enter 'FileFind' into the search text window and click on Go. That will tell you the utility is in the *Filemanager* area. Copy that to a suitable hard drive and you've not only proved the CD is useful but found a neat tool to search it further.

I'm told there are 3000 programs on these discs – there are over 1500 files in the Argonet folder alone. Just listing them would more than fill up this review and reviewing them is clearly impossible. Equally whatever I choose as highlights will inevitable reflect my interests and not yours. But here anyway are a few goodies I came across more or less at random.

Under 'Database' in HENSA I found *Powerbase* (Figure I) which also appears elsewhere in an updated version. There's a lesson here: the major sites are great for rummaging on as they are the most varied, but they may not have the latest version and you may be able to get that on line, or as with *Powerbase*, on the other disc.

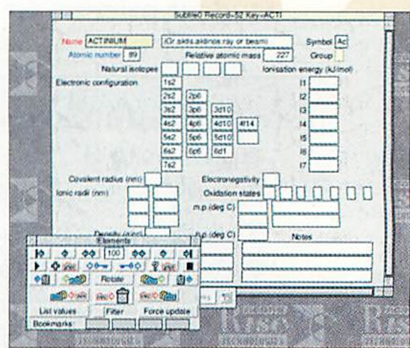


Figure I: Powerbase looks pretty cool

I'd not come across *Powerbase* before and I've not had time to investigate it in any detail, but two things intrigue me: first it looks extremely flexible in layout terms (several examples are included), second it would appear to be still under development in the sense that its authors are still working on new and improved versions. The HENSA version is old but the other one has 01 09 1999 as its release date. If you are after a database, *Powerbase*, which is Shareware, would certainly be worth investigating.

Loading *Powerbase* on my system, a Risc PC with StrongARM, was no problem as it's recent. Aside from the fact that many apps need to be copied to a hard drive first because they won't run from an archived

Riding for Mencap



It was two years ago that Steve Turnbull rode across the Sinai Desert on behalf of Mencap and raised nearly £1500. This new bike ride in China is set to raise at least twice that amount – probably much more.

Paul Johnson is well known in the Acorn world for his charity work, starting with the Comic Relief auction, and then the Kosovo CD. Going from strength to strength he has teamed up with Steve Turnbull for this latest venture which will raise even more for charity.

Mencap was founded in 1946 and is Britain's leading charity for people with a learning disability (mental handicap) and their families. It provides a range of housing, education, employment, information and holiday services. Mencap's national network of Gateway Clubs provide leisure opportunities, and take a leading role in helping people with a learning disability make their own choices and express their views.

Mike Buckingham explores the latest charity extravaganza

ROMs

read-only disc, a great many failed for one reason or another. The single most common reason is that they are now out of date and were designed for older RISC OS machines, many no doubt are not StrongARM compatible.

In fact I would hazard a guess that users of older machines are likely to find more of the utilities solve a need. Not only will the apps run happily, but they will resolve a problem or plug a gap in the OS where later versions of RISC OS had that functionality included. It's much harder to find improvements for RISC OS 3.7 or 4.

But whatever OS you are running, if you have any interest in programming for RISC OS there is, in fact, a huge number of files in these sites to intrigue, fascinate and provide help, whether your aims are in Basic, C (I came across several utilities relating to GNU C++) or in HTML which is very well represented with tools, graphics converters, syntax checkers and so on. This same disc contains a StrongHelp directory which includes 24 StrongHelp manuals. If you are a programmer you will certainly have and use some of these, but maybe there will be a few here you haven't collected in your travels.

The first thing that strikes on opening up disc two, however, is the Acorn Web site which includes two potentially useful items – upgraders for the FontManager and, even more usefully perhaps, the Toolbox modules. The Toolbox has been altered quite substantially over the years and much modern software relies on updated modules, generating complaints if the wrong old module is found to be active. If you have this problem and don't have access to the Net – this is for you.

Staying with the techie feel for the moment, APDL's *HardDisc* test program is on the disc: useful if you need to check out your hardware or see which drive/system is actually faster. It is, as you can see from Figure II, very comprehensive and works well.

HD Speed Test

Random Access tests	Iterations	Time	%
Read 50K sequential	10	6.6	2709
Write 50K sequential	10	31.5	1082
Read 512K sequential	1	55	3369
Write 512K sequential	1	344	1009
50K file read 1000 random		504	281
50K file write 1000 random		1740	150
Large file read 1000 random		1105	845
Large file write 1000 random		2377	662

Block Load and Save	Iterations	Kb/sec	%
Save 50K	100	2475	1219
Load 50K	100	2890	966
Save large block file	10	3465	962
Load large block file	10	4112	1126
Save and Load 50K	25	2500	1037
Save and Load 512K	10	3292	932
Save/Load large block	10	3744	1025

File system ATAFS
Drive ALPHA
Random file 8 Mb Kb
Lge block file 2 Mb Kb
Pause Stop
Finished
Setup
Save
Restore
Default
Drag this icon to a window on drive to be tested

Figure II: Bet my harddisc is faster than yours

If you want music while you work, the *AudioPlayers* directory will be of interest to you; inside you will find a selection of useful utilities, including some MP3 software – an increasingly common format these days.

But for the teachers among you there are some real gems. Check out the Avogadro folder: *MolecDemo* which lurks deep within, contains 3D files of approaching a hundred common molecules of interest to A level students, all of which can be twisted and turned easily using the viewer program to see how they are constructed in 3D. Neat. If that gives you a headache Figure III is just what you need.

For historians, the collection of text and images to be found within the Greeks folder is superb, just have a look at the vase. This is just one screen from a magnificent resource using the multimedia capabilities of *TextEase* including sound, the *TextEase* viewer is included. I presume it's aimed at schools, but even if you are a tad too old for that,

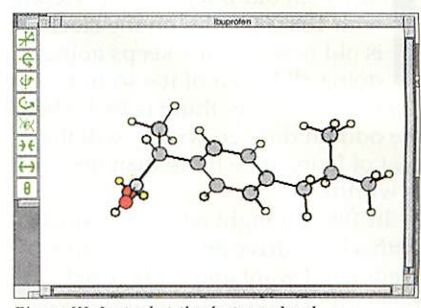


Figure III: Just what the doctor ordered

it's well worth a browse.

All three of these illustrate the quality and variety of the RISC OS scene – and mostly free or nearly free. I am always impressed by what is available for next to nothing for our platform.

I've missed out so much. I've not mentioned things like emulators, or games of which there are a fair few, utilities such as a year planner and a memo system, trivia like the program that puts flashing Christmas fairy lights across the top of your screen, the snowstorm or various backdrop sillies. And I'm sure there is a host of other stuff I've just not yet found.

If you use your machine for anything other than the most mainstream of tasks, I can't imagine you won't find something useful on these discs. I'm quite sure you are likely to find something entertaining and a great deal that is new to you. If you are interested in enhancing your programming capability I'm absolutely certain that hunting through the vast number of utilities will turn up something that will prove to be an invaluable tool in due course, or simply solve that niggling problem you've been working around for a while.

Even if you are on the Net, having this collection at hand when you need it will prove worth the small outlay. If you are not on the Net, you really should get these discs, they will open up a new world to you. END

Product details

Product: China CDs
Price: £12.50 (minimum donation)
Supplier: By cheque or PO (payable to RISC OS Charity Projects), direct to Paul F. Johnson, 77 Station Road, Haydock, St Helens WA11 0JL.
By credit/debit card from CTA (01942 797777); CJE (01903 523222); APDL (0181 778 2659); Archive (01603 441777); Riscstation Australia (+61 3 9458 3599)

Keeping Aco

I drive an old B reg Honda Accord with 168,000 miles on the clock. It is old now but just keeps going, doing all I need of it – sound familiar? The only thing is that when the odd bit does go wrong, will the cost of fixing it be more than the car is worth?

In 1991 I bought an A3000 which, with a hard drive and ARM3, does almost all I want and is still used regularly. The year before, my wife (before we met) had bought an Amstrad 8086 processor "IBM compatible". We tried to sell that in 1992 and managed to get something for it privately but dealers in PCs assessed it as basically worthless even then though it was only 2 years old. It had a strange early version of Windoze which could do very little though I had been using drag and drop on Acorns for some years before it was "born".

Enough personal history – but a not unfamiliar story and it raises the question that, with the longevity of Acorn machines, how do you make it cost effective to keep the older ones going in the event that something does go wrong? I know there are some that advocate that users of older models should all upgrade to keep the market as healthy as possible but this may not be an option – any more than it is for me to buy a new car because the exhaust goes.

Besides many schools, when they buy new equipment, want to add it to what they already have and not necessarily replace them. Keeping the older models going also helps maintain a wider user base generally and therefore a better market for producers of software and peripherals to supply. This article then looks at some tips for keeping older machines going in a cost effective manner in the event of keyboard or mouse problems.



Keyboards

Keyboards are one of the things, in schools particularly, which tend to go simply because of the amount of use by pupils over the years. I have known of cases where the sheer usage of keyboards has rubbed the lettering off even though the keyboard itself still works.

Taking a look at separate keyboards first:

A bog standard PC keyboard can be bought for around a tenner. CPC do an Acer-branded standard PC keyboard with a PS/2 connector from just £6.99 (ex VAT). These will replace Risc PC or A7000 keyboards directly though as these machines are current ones there is less need to go for a cheap substitute and you can get a replacement from a variety of dealers if you want to stick to Acorn-orientated suppliers.

However, these are no good for the earlier Acorns such as the A300, A400, A4000 and A5000 where the mouse plugs into the keyboard and the keyboard/mouse assembly then plugs in a single socket on the computer itself. Replacement keyboards of this type are available from businesses like Castle, Reflex and CTA but at prices ranging from £59 to £69 each (ex VAT) may cost more than a machine is worth (for an A310 say) or be too substantial a proportion of its value.

Enter the keyboard encoder from Atomwide (right) which is a clever little device with two sockets that will take a standard PC keyboard in one and an Acorn mouse in the other. It has a short lead attached to an Acorn keyboard connector which will then plug into the keyboard socket on the computer.



The cost of the encoder is £39 but even allowing for that it can still be more economical than buying a replacement Acorn one with the added advantage that in future you can replace the PC keyboard with any other PC keyboard. Atomwide do not guarantee it will work with all PC keyboards but will supply a compatible PC one for £20. I have tested an encoder over a period of about a year with an Acer PC keyboard and had no trouble.

If you are really strapped for cash you could try using the keyboard encoder with a second hand PC keyboard from one of the many PCs (probably younger than the Acorn needing the replacement) going to the scrap yard. The keyboard needs to have the more modern PS/2 connector on it to fit the encoder but CPC do several adaptors to allow

your
rns going

Mike Battersby goes into the new millennium

earlier 5 pin DIN PC AT keyboard connectors to convert to PS/2 ones. An adaptor with a cable between the two end connectors costs 71p, which is quite affordable though probably more than the average 386 (which it might come from) is worth these days!

Yet another option is to replace the inner keyboard assembly. With the original A5000 type keyboard unit, there are a number of fixing screws which hold the two halves of the plastic cover together and once it is opened the keyboard unit inside is identical to the A3000, A3020-type of integral keyboard assembly and so can be swapped for one of these. For example, take a defunct A3000 or you could buy a new replacement from Reflex Electronics. Even with a new internal replacement this would be more economical than buying a complete new keyboard. Note that this is NOT the case with the older A300/400 keyboards or the A4000 type keyboard which may also have been supplied with some later A5000s. Moving on to integral keyboards: The A3000, A3010 and A3020 all have keyboards integrated into the main housing (Figure II) so the options in the preceding section do not apply. It is possible to source a new replacement for this from Reflex Electronics.

By opening the housing of the appropriate model and detaching the keyboard connector from its socket, a keyboard can be removed and a replacement can basically be 'dropped in' and the connector strip inserted in the socket. As mentioned earlier, the same keyboard is present inside the housing of the A5000 keyboard case and so keyboards could be swapped to or from A5000 ones as well, depending on what needs to be replaced and what is available. An A3010 has the same keyboard but with green keys in place of the red function keys.

Surprisingly it costs more than the normal one with red keys but you could buy one with red keys and if you want to retain the green colour you can gently prise the key caps off and replace the red ones with the green ones.

If you have Internet access Acorn newsgroups or the Acorn Cybervillage may be a source of used parts or use the Free Ads in this very magazine, being free you can't get any more economical than that.

Have a mice day

Acorn mice are unique and no PC mouse can replace it directly. However, there is no need at present as it is still easy to source replacements. Castle, Reflex Electronics and CTA all supply Acorn-type mice. However if you are on a tight budget CPC do what they call an Archimedes (aah nostalgia!) Compatible mouse from just £4.18 (ex VAT) (or £3.80 each for quantities over 25) when on special offer. These have sealed microswitches and are quite durable. Note that the A7000 mouse is different from the others as it has a PS/2 connector on it, replacements available from Castle and CTA.

And finally, if it's a case of 'old mice never die... then Castle also do a pack of replacement mouse balls.

END



Suppliers and products

Castle Technology Ltd

Address: Ore Trading Estate, Woodbridge Road, Framlingham, Suffolk IP13 9LL
Tel: 01728 723200
Fax: 0800 783 9638
E-mail: sales@castle.org.uk
Web: www.castle.org.uk

Item	Price
'Ergo' Keyboard for older Acorns (KBD02)	£69
Risc PC/A7000 Ergo/std/Aura keyboards (KBD10/KBD14/KBD15)	£39/£19/£29
Acorn compatible mouse/A7000 mouse (CTP36/CTP48)	£12/£12
Pack of 10 mouse balls (CTP51)	£15

Atomwide

Address: Unit 7, The Metro Centre, Bridge Road, Orpington, Kent BR5 2BE
Tel: 01689 814500
Fax: 01689 814501
E-mail: sales@atomwide.co.uk
Web: www.atomwide.co.uk

Item	Price
Keyboard encoder	£39
Compatible PC keyboard	£20

Reflex Electronics Ltd

Address: Units 17/18 Gunnels Wood Park, Gunnels Wood Road, Stevenage, Herts SG1 2BH
Tel: 01438 317200
Fax: 01438 311286
E-mail: service@reflexel.demon.co.uk
Web: www.reflexel.demon.co.uk

Item	Price
Acorn original mouse	£15.99
Replacement A3000/3020 keyboard	£21.94/£29*

*education prices

CTA

Address: Curriculum Training Associates, 168 Elliot St, Tyldesley, Manchester M29 8DS
Tel: 01942 79777
Fax: 01942 797711
E-mail: sales@cta.u-net.com
Web: www.cta.u-net.com

Item	Price
Keyboards for older Acorns, standard/ergo	£59/69
Acorn original mouse	£25
Acorn compatible mouse	£12

CPC

Address: Faraday Drive, Fulwood, Preston, Lancashire PR2 9PP
Tel: 01772 654455
Fax: 01772 654466

Item	Price
Acer PC keyboard (SB00704)	£6.99*
Adaptors from PC/AT connector to PS/2:	
Straight adaptor (CHO1393)	£0.65
Right angle adaptor (CHO1394)	£0.97
Cable adaptor (CHO1395)	£0.71
Archimedes compatible mouse (CHO1663)	£4.18*

* price when on special offer, otherwise marginally higher. You need to open an account to order from them

Note: all prices are ex VAT and exclude carriage.


ACORN SOUTHWEST SHOW

LanMan98

The RISC OS environment has always been well equipped for sharing drives, files and printers with other RISC OS machines across local area networks (LAN). However, until now, expensive software was needed in order to access shared resources on Windows-based systems. *LanMan98* from Warm Silence Software fills this gap. It provides a low-cost way of accessing shared drives and printers on machines running Windows 95/98.

Before the software will be of any use to you, you'll need a fully functioning network present. This means your RISC OS machine(s) will have to be equipped with network cards and connected to the PCs through either co-ax cables or the faster phone-style cables and a hub.

The Windows machines will also need to have TCP/IP support installed along with file and print sharing before they are accessible from the RISC OS desktop. Once this is all completed, each machine must be assigned an IP address then a host name. This process is quite complex for those unfamiliar with networking so it would have been nice to have seen a comprehensive tutorial in the documentation.

Other than that, the program is intuitive and easy to use. Mounting a Windows share for use under RISC OS is childsplay. Simply enter the computer and share name, the password if appropriate, and you're away. The option to remember passwords would be a nice touch though for those who need to protect certain drives from other network users but not from the RISC OS machine. *LanMan98* is fully compatible with the long filenames system employed under Windows 95 and 98. This support even exists when used on pre-RISC OS 4 machines.

Typically, *LanMan98* achieved about 1MB/sec read and 500KB/sec write using my rather old network card. Users with more recent cards will most likely experience far better speeds though. Shared printers may also be accessed through *LanMan98* provided a suitable RISC OS printer driver exists.

In conclusion, if you're looking for software to access the contents of your PC from within RISC OS in a nice, tidy manner, you can't go far wrong with *LanMan98*. It would be nice to see a future version of the program working both ways and allowing RISC OS shares to be accessed from the PC.

Alasdair Bailey

Product details

Product:	LanMan98
Price:	£35 + VAT (or see Acorn User special offer)
Supplier:	Warm Silence Software, PO Box 28, Woodstock, Oxon, OX20 1XX
Tel/Fax:	01608 737 172
E-mail:	info@wss.co.uk
Web:	http://www.wss.co.uk/

FastSpool+

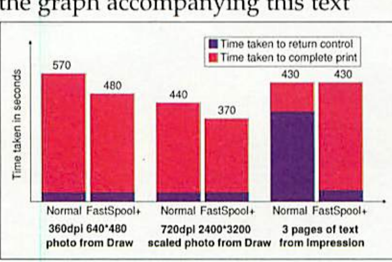
FastSpool+ is a small program speeds up printer spooling from RISC OS machines. It achieves this by taking charge of the printout file once it has been processed by *!Printers* and spooling it to the printer more effectively than RISC OS normally does. Setting up and installing the program is simple, the default settings will work with most systems and the only manual aspect is the configuration of *!Printers* to work with *FastSpool+*. This only involves typing a pathname into the print-to-file option and ample documentation of this and other features is provided.

FastSpool+ has two means by which it is able to speed up printing. Firstly, it employs a far more effective method of spooling to the printer while the file is still being generated. Thanks to this, a significant portion of time is saved because the printer is printing at full speed even while the output is still being created.

Secondly, data is spooled in a more efficient manner during the rest of the printout. It can be seen from the graph accompanying this text that the use of *FastSpool+* does indeed improve printing speeds. Although some of the timings don't paint a very good picture, it was found that spooling with *FastSpool+* put significantly less strain on the computer. For example, when using *!Printers*, MP3 music playback often falters but this did not occur with *FastSpool+*. The tests were all carried out using an Epson Stylus Color 500 printer connected to a StrongARM Risc PC. It's also worth noting that performance benefits will vary from system to system. Brief testing on an ARM7 machine showed that more impressive speed improvements are indeed possible than with StrongARM machines. *Turbodrivers* and network printing are both supported by *FastSpool+*. A handy option is also included whereby extra copies of printouts may be ordered straight from the queue window.

To conclude, if you often need to print large amounts of text or hi-res graphics you can't go far wrong with a copy of *FastSpool+*.

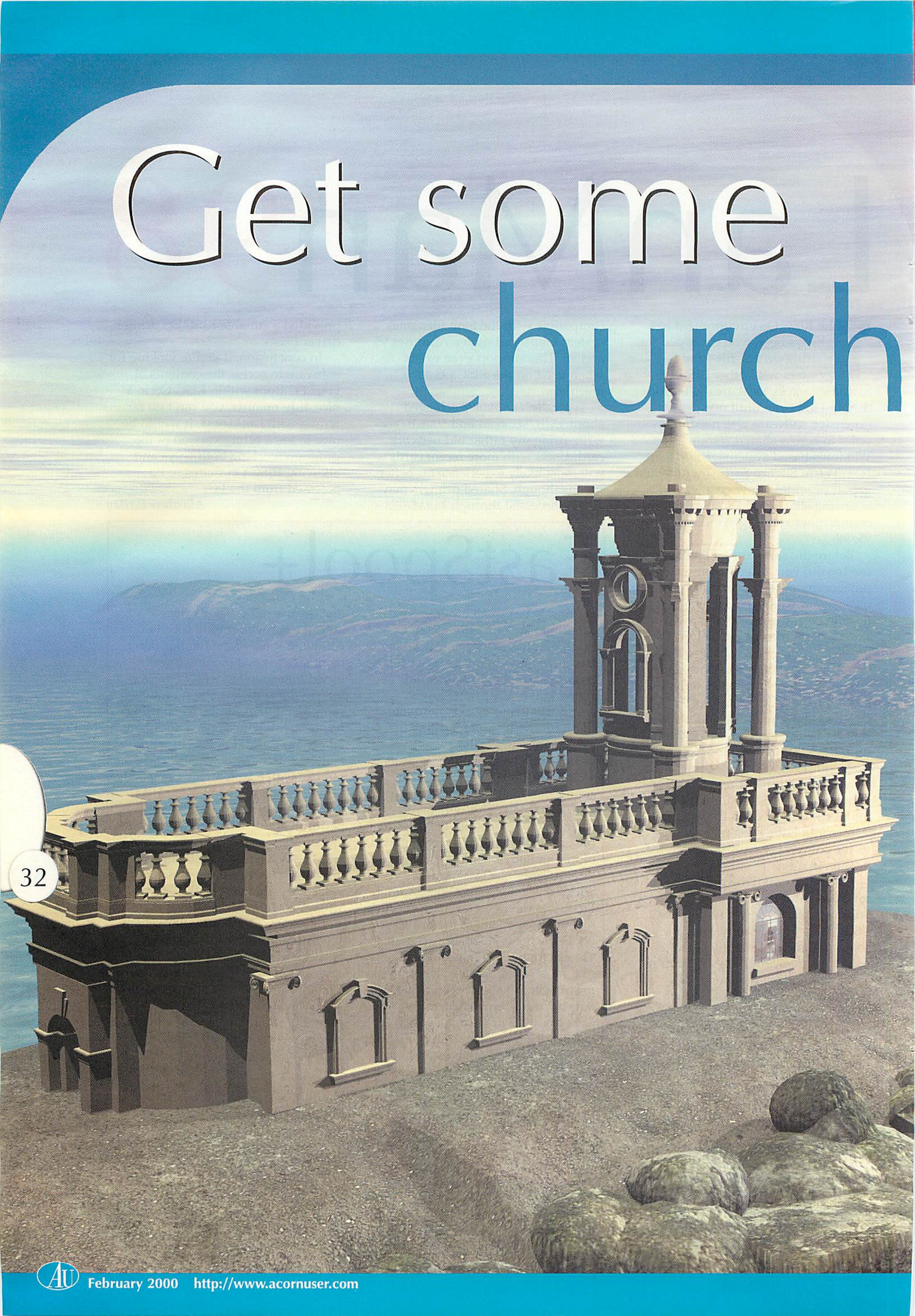
Alasdair Bailey



Speed tests carried out using StrongARM Risc PC and an Epson Stylus Color 500 Printer

Product details

Product:	FastSpool+
Price:	£15 + VAT
Supplier:	Warm Silence Software, PO Box 28, Woodstock, Oxon, OX20 1XX
Tel/Fax:	01608 737 172
E-mail:	info@wss.co.uk
Web:	http://www.wss.co.uk/


Get some
church

Max Palmer creates a masterpiece in stone

ing up

During the past couple of months we have been looking at *TopModel* and learning how to get to grips with its modelling tools. In particular, we have examined the user interface and briefly discussed some aspects of basic modelling theory, introducing concepts such as points, primitives and nets, as well as polygonal and bezier modelling.

If you have been following the series, you should be familiar with these terms and should also be reasonably comfortable creating, selecting, and manipulating objects or their parts. Certainly, one of the problems when writing a series of this type is pitching the learning curve at the right level so that someone following it is able to improve their skills, without being left behind. It is also necessary to build on techniques and ideas discussed in previous articles.

Hopefully, I've got the level about right, however, as always, I can only do half the work, the key to making real progress is to keep practising the techniques. If you are having problems though, feel free to drop me a line at *Acorn User* and I'll try to help out.

The inspiration for this month's article sprang from two quarters: I have just bought a digital camera, which I can testify is a great aid to modelling; And I recently made a trip to Rutland and while out walking, decided that Normanton Church, a partially submerged church which is situated on a promontory in Rutland Water, would make a great subject for modelling (Figure I).

Having settled on my subject, I set about taking a series of photographs of the church, making sure I captured both the large-scale features as well as some of the finer details. It was also important to capture all four faces of the building and their interfaces, since any gaps in the photographic record would lead to unnecessary guesswork when I got back to the computer. Fortunately, 'digital film' gives you a free reign to take as many photos as you need. It also has the added advantage of being great for capturing textures (images of windows, doors, materials and so on) which can be readily incorporated into your work with the minimum of hassle.

Once I had my set of photographs, I sat down and tried to sketch an overall plan of the church using the images to gain information about the relative proportions of the building and the location of key features, such as columns and windows.

In this instance it would be futile to model every detail of the building, however I wanted to strike a balance between recreating the macroscopic features and the finer, more subtle details. It is therefore worth spending some time modelling a few of the smaller, less noticeable features (like the scrollwork on the columns and pilastes – a square column set in a wall), since this gives a model a greater sense of realism. Bear in mind though that it is always possible to use textures to create the illusion of structure, simplifying the modelling task (Figure II).

It soon became apparent, after examining how the design could be broken up, that I might have bitten off more than I could chew. However, I was confident that *TopModel* could handle the task. In fact, it turned out that my PC had more of a problem with the model.

One habit that is worth acquiring when dealing with complex designs is to break a model up into parts that can be modelled individually, rather than attempting to model the whole object in a single file. This approach has the advantage that each scene is less cluttered, making it easier to see what you're doing, as well as reducing the load on the processor, making the package feel more responsive. The final scene can then be assembled by importing, scaling and positioning the individual objects.

Fortunately, the church could be naturally divided into three main sections, the tower, the balustrading and the lower portion of the building. The latter was further subdivided into the main section of the building, the rear portion, the windows and the three types of column.

Rather than attempt to give a detailed explanation of each step

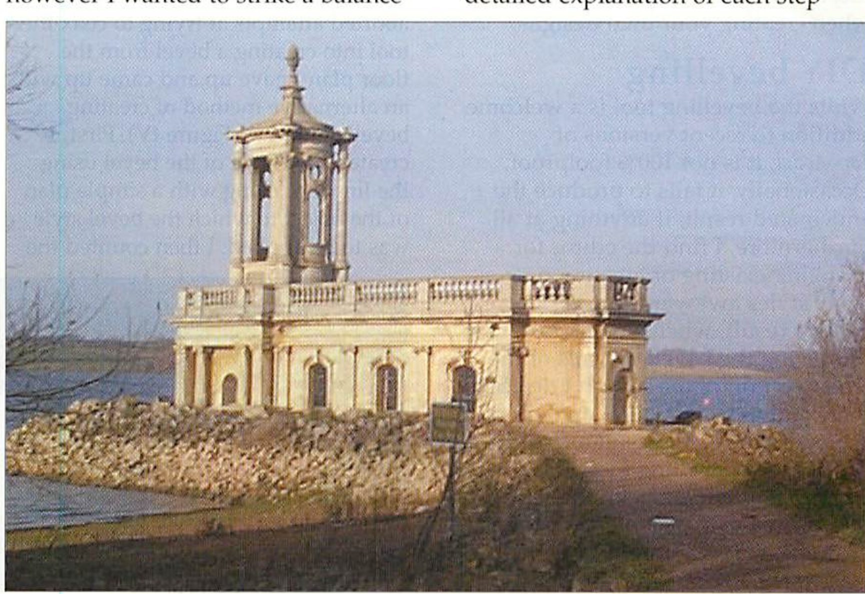


Figure I: Normanton church, Rutland (the real one)

Figure II: Textures, such as this window image, can be used to increase detail and reduce modelling time

used to model the church, I have chosen to discuss a small selection of objects that posed particular challenges or which involved the use and development of specialised techniques. Hopefully, the approaches taken in overcoming these problems will prove useful when creating your own designs.

DIY bevelling

While the bevelling tool is a welcome addition to recent versions of *TopModel*, it is not 100% foolproof. Occasionally, it fails to produce the anticipated result, if anything at all. Furthermore, I find the editor for changing existing or creating new bevel styles awkward to use.

As a result, when it came to producing the bevelled walls of the lower section of the church I decided there had to be a manual method of achieving the same result as TopModel's bevelling tool. For those that are not familiar with the term, a "bevel" refers to a slanted edge, for example, that you might find on an elaborate piece of furniture.

Unsurprisingly therefore, the bevelling tool can be used to create objects with fancy edges, rather than a simple 90 degree interface. A few examples of different bevel styles are shown in Figure III.

The first task I wanted to use the bevelling tool for was to produce the walls of the church. After a few aborted attempts at trying to coax the tool into creating a bevel from the floor plan I gave up and came up with an alternative method of creating bevelled objects (Figure IV). First, I created the shape of the bevel using the line tool along with a simple plan of the object to which the bevel style was to be applied. I then counted the number of points used to create the outline of the plan and applied an extrusion to the bevel profile, setting the number of steps to be one more than the number of points in the plan.

Next, I selected the first of the extruded sections and moved the profile so that the innermost point lay on top of the first point in the plan (when viewed from above). I then shifted the view axis to also lie at this point and rotated the profile about the axis until it was at the correct angle to the centre of the object. I repeated the above procedure with each of the sections of the extrusion, using the next point

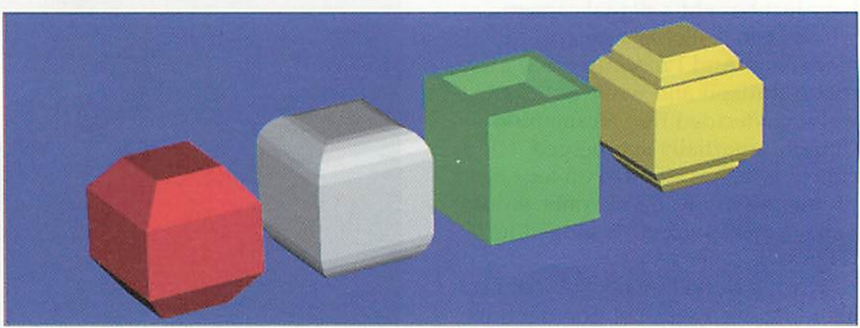


Figure III: Some examples of different bevelled edges

Figure IV: DIY bevelling. Each extruded profile section should be married up with a point on the plan (green and cyan blobs) and then rotated about the local centre point to achieve the desired bevel shape. The bevelled object is shown in red in Figure V

in the plan as the centre of the rotation, until I returned to the original starting location.

Finally, I fused the start and end profile, which should overlap, using the join tool to replace the overlapping pairs of points with a single point. I then used the create line/poly tool to fill in the gap in the top surface of the bevelled object with polygons. The great advantage of using the method outlined above is that it gives you much finer control of the angle of the bevelled surface to the outline of the plan. The obvious drawback is that it takes quite a bit longer to produce the result. However, you can be sure you'll end up with the effect you're after. I used this technique to create a large number of objects used in the church model, a number of which are shown in Figure V.

Holey objects

Another problem I encounter frequently while using *TopModel* is that of creating objects, particularly flat surfaces, with holes in them. This is one area where I long for Boolean modelling support or at any rate an improved drawfile import filter. However, in their absence, I have cultivated an alternative technique for cutting holes in an object. One application where you might need to create an object with a hole is to create the illusion of an opening in a wall, for example. Indeed, this is exactly the type of task I encountered while modelling the lower portion of the church, where I needed to insert the window and door into an existing wall.

The solution to the problem is to create two outlines. The first is the object which you wish to cut the opening from (which might already have been created), while the second defines the shape of the hole. Next you need to select the outline of the hole and move it so that it lies in the same plane as the surface you wish to cut the hole from.

Rather than modify the existing surface, the key to the technique is to create a new surface using the two sets of points. This can be done using the create line/poly tool, which we have seen in action in the previous article. To do this, simply select neighbouring groups of three points and then use the join tool (or Shift+Control+L). By selecting logical groups of points, you should be able to preserve the shape of the hole, as illustrated in Figure VI. Once the new set of polygons has been created, the original polygons should be selected and deleted.

The above technique can be used to insert all kinds of objects into flat surfaces, simply by replacing the original surface with a new surface with an appropriately shaped hole. However, useful as this technique is, it needs to be refined if the surface you wish to create the hole in is not flat, for example, the curved surface in the central portion of the tower.

Faulty towers

The most complex task I encountered when modelling the church was creating the central portion of the tower, which contains two openings situated within a curved wall (Figure VII). While the two structures defining the opening could be modelled quite easily using a combination of sweeps and extrusions, the real headache lay in combining these features with the curved wall. The reason why this is a such a tricky problem is that we have to preserve the original structure of the surface (the curve) while also preserving the shape of the hole. The resulting surface that needs to be created must therefore incorporate features of both these objects. As you can probably guess, the solution to this problem is quite involved (Figure VIII).

Taking the two surfaces as the starting point, I switched to a front view and made sure that the hole (formed from a simple outline created using the line tool) was positioned in the right place relative to the curved wall. I then picked an arbitrary starting point on the 'hole' and traced my way around the outline. Each time I came across a location where a line

Product details

Max Palmer:
topmodel@acornuser.com

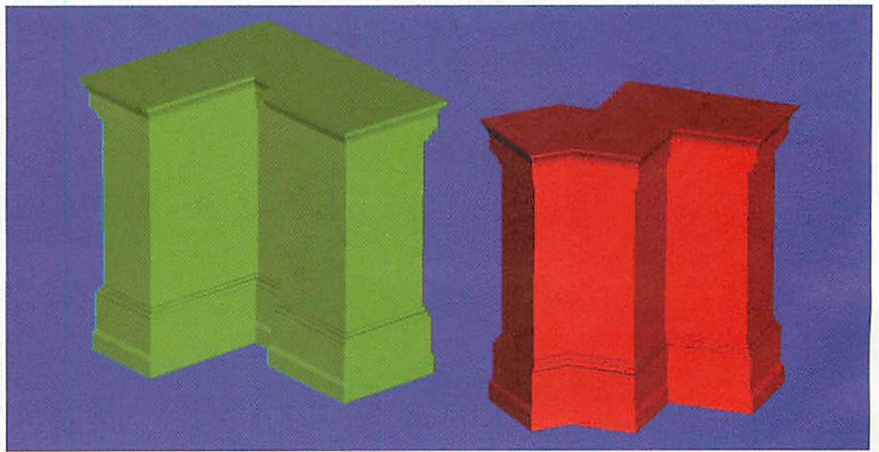


Figure V: Two objects produced using the manual bevelling technique

Figure VI: Objects with holes can be produced by manually connecting the two set of points (left), using the create line / poly tool (middle, multicoloured polygons), to produce a new net of polygons (right)

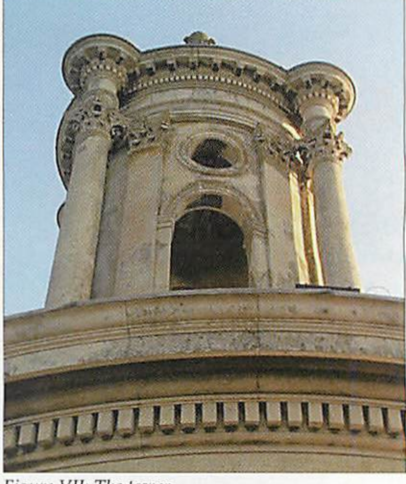


Figure VII: The tower

from the curved surface crossed the outline of the hole I created a new point in the outline and shifted it to the position of the intersection. This was done by selecting the two neighbouring points in the outline and choosing the "split into two parts" tool (under specials). This created a new point in the outline, which I then shifted into the correct position (the intersection of the two lines).

Once this process had been completed I switched to an overhead view and shifted each of the points in the hole so that they lay in the plane of the curved surface. This was done by selecting each point in the outline and then shifting them up the screen so that they overlapped the profile of the curve. At the end of these two stages you should end up with an outline (of the hole) that lies on the surface of the curved wall. The final stage is to switch back to the front view and connect neighbouring groups of points together using the create line/poly tool. However there are now additional restrictions, unlike the case of the plane where we could select any group of three points that preserved the shape of the hole and the polygonal structure already created. The problem is that all polygons created *must* lie in the plane of one of the curved sections of the wall (see Figure VIII). If this is not done the new surface will not match the old curved surface.

Once the new surface had been created, I repositioned the circular outline and archway so that they occupied the position of the hole (Figure IX).

Overview

The techniques I have described this month represent solutions to the more tricky aspects of modelling the church that I encountered and have therefore taken some time to explain. However, they are typical of some of the more complex types of problem you are likely to encounter during your own modelling work with TopModel.

Regrettably, there is insufficient space to describe how the rest of the structure was created, except to say that it involved a combination of the sweep, copy and extrude tools, a number of application of which we have already encountered elsewhere in the series. The remainder of the work was simply a case of duplicating the original objects using the copy and mirror tools combined with careful positioning. Finally, the model – all 8Mb of it – was exported from *TopModel* and loaded into *Bryce 4* on my PC where I added some background scenery before rendering. Hopefully the result was worth it. As always, if you have any questions about the creation of the model or anything else to do with TopModel then don't hesitate to contact me. See you next month. END

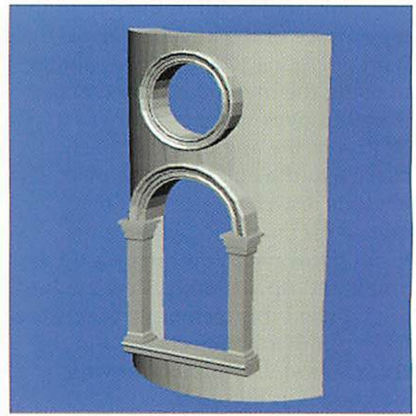


Figure IX: The finished tower section

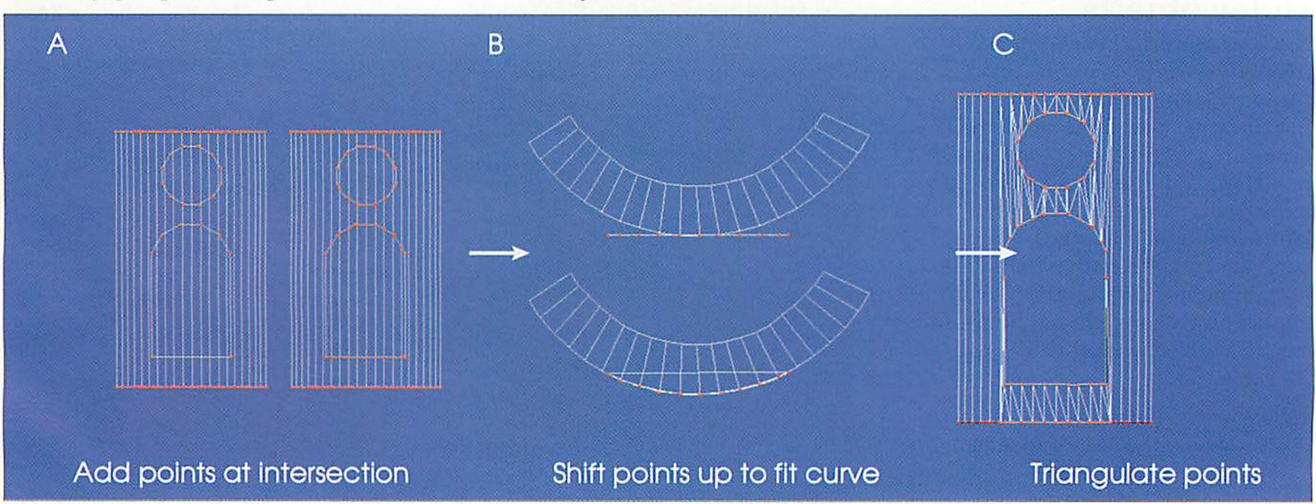


Figure VIII: Steps used to create holes in a curved surface (see text)

2000 OS Show

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Flying high

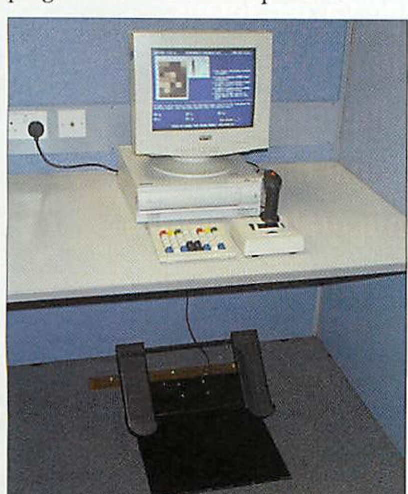
Another RISC OS wing from Alistair Lang

Selection for the Royal Air Force involves an assessment of various elements such as academic achievement, physical fitness, medical status, motivation and potential for success in training. Abilities need to be measured objectively and scientifically in order to predict future performances. In the RAF this is done by aptitude testing potential candidates in a controlled environment.

The aptitude tests are designed to predict a relationship between a measured ability and the outcome of training for groups of similar people. It is important that a test really predicts what it is supposed to predict and appropriate sample sizes of candidates need to be tracked through their professional training – it can take years before analysis shows the true relationship between test performance and training outcome.

Training aircrew and controllers is very demanding and, unsurprisingly, a very high standard of achievement is expected – and the training is very expensive so it's crucial that an efficient selection mechanism is used.

In 1980 it was recommended that money was made available to research RAF pilot training to improve the selection process in a two-stage programme. The first step was to computerise all the tests – the need for a computer-based system over paper-and-pencil was obvious: manpower efficiency would release RAF personnel for other jobs; better control and standardisation would produce more reliable results; speed and accuracy of analysis would be increased; and there would be improved scope for research and development of new tests.


The Risc PC testing box

This second stage of test development is still continuing today, with every new test, the design changes are bigger and better with improved graphics, more audio and, eventually, virtual reality. So the computers used need to keep pace with the demand for improvement.

In 1985 the RAF's Aptitude Testing System (ATS, based at Biggin Hill in Kent) was introduced to computerisation in the shape of the stand-alone Torch computers with support from the RAF's Simulator Technicians' branch. The Torch was, in fact, a BBC Micro with a Z80 processor add-on which ran CP/M – Control Program for Microcomputers.

This system continued to be used until 1991 when it was upgraded to Acorn Archimedes on an Econet network with an Oracle database for storage. The following year saw the move to RAF Cranwell, the home of the Directorate of Recruiting and Selection. During the Archimedes phase the system underwent various support changes, finally from RAF to contractor.

The Aptitude Testing section is manned by RAF personnel and headed by a retired officer, Dick Woodhead, whose RAF flying career spanned 36 years and 74 different types of aircraft. The Primary Maintenance and Software Team (PMST) are responsible for supporting elements of the hardware and software, and programming the tests. This team is currently manned by Hunting Contract Services who took over the contract in Dec 1997 and installed the latest upgrade in 1998.

Hunting Contract Services Team

Manager	Alistair Lang
Systems Administrator	David Smillie
Senior Programmer	Mark Page


How the testing room looks today

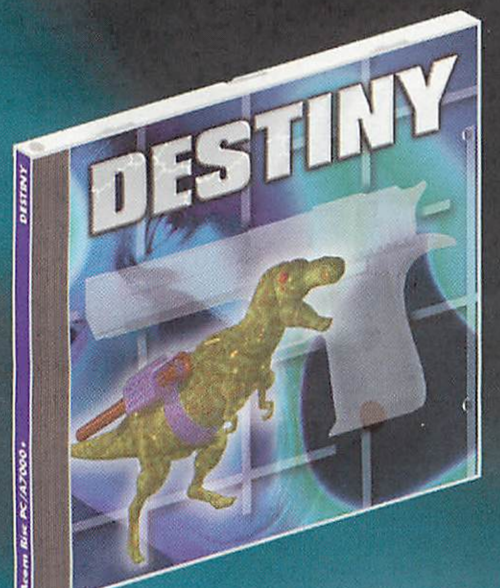
The existing system tests up to 45 candidates simultaneously and provides realtime scores to the Officer and Aircrew Selection Centre (OASC). These 45 Acorn Risc PCs are networked in a single temperature-controlled room, each in its own area and each with joystick, foot pedals and keypad. The room has a supervisor's station from where an invigilator can monitor all stations, as a group and individually.

There is a further manager's station outside the test room where general candidate administration is controlled prior to, during and after aptitude testing. This testing forms an integral part of a wider-reaching boarding programme that includes interviews, a medical and various assessments of personal qualities. So there we have it, three generations of Acorn machines involved in the selection of Officers to the RAF as well as aircrew elements of the Royal Navy, Army, Civil Aviation and the civilian Police Service among others.

The question is what will the next system be? END

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What you c

The drawing package which comes free with any Acorn computer is sadly overlooked by many owners. The facilities offered for nothing in *Draw* would cost at least £50 on a non-Acorn PC, why then isn't it in more frequent use? Possibly the name is the problem.

If it was called *Hyper-Magic-Image-Pro* or some such it would sound more like what it is – calling it *Draw* makes you think of broken pencils and dirty crayons with the wrapping peeling off. This misapprehension can be put right in a remarkably short time by having a really good solid play while reading a helpful guide (like this one). Many of the basics have already been covered, more are to come – first is a description of Interpolation.



Figure I: Interpolate! Interpolate! Interpolate!

Thanks to Terry

The group of two-dimensional pseudo-Daleks in Figure I is an example of *Draw*'s version of a picture morphing facility. Fortunately for my poor artistry I only had to draw one Dalek to make this picture, the left one, the one on the right is a simple copy, the gradually changing shaped Daleks in between were supplied by the computer, using a gradually changing fill-colour as it went – using the Grade option as it happens.

It is not only Daleks which can be drawn this way but any single continuous line drawing can be used. To prove it yourself, try working with something simple first, like a rectangle merging into a circle.

There are two ways to perform a RISC OS-type morph, use either the Interpolate function (which is more violent with the shapes) or the Grade function from the Select menu. The Figure II shows the results of four-step Grade and Interpolate function together with a split-apart version to more clearly show the difference between the two options.

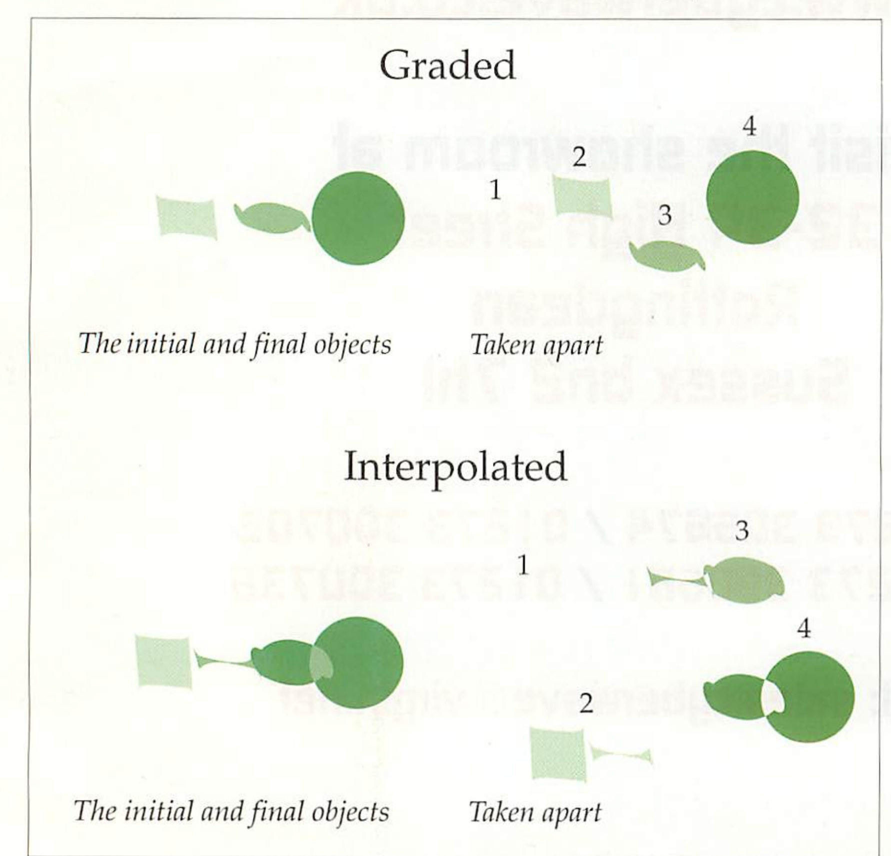


Figure II: Differences between the Grade and Interpolate functions

Step by step

You can't interpolate or grade any two objects though, three conditions have to be met: the two shapes must each be formed with just one Draw Path, (a single line); they must both have the same number of points; and the start and end objects are grouped.

Think of a path as being the trace left by a pencil drawing, a line without going back over itself or rising from the paper. A figure of eight would be one path but two circles side by side would be two paths (probably – unless you use 'invisible ink', that is what the Move tool does).

A point – a Control Point to be accurate – is the place at which the computer takes stock of where it is and how it is going to continue drawing the line. When you draw any object, points are created where you click, at the corners of a rectangle and at four places on an ellipse (see Figure III). No point is drawn when you click to start drawing an ellipse by the way. The points are shown as blue squares which are only visible while you create the object or when you are editing it.

Pressing Return or double-clicking Select will wipe out the points and show you the fully drawn (or "rendered") object. To do anything major to the actual shape of the object (other than squash or twist it) you need to get at the control points again – for that you need the Edit mode.

Edit mode

Edit mode can be entered by selecting a single object (so that the red dotted bounding box is displayed around it) and typing Control+E, this will show you the control points of the object you are editing.

If you try this and it does not work it could be that your object is a group. You will have to ungroup it first to edit the individual parts. Edit

ouldn't draw before

Simon Anthony blends into a new shape

mode can also be entered by clicking Adjust on an object when a drawing tool is highlighted. (I used Edit to add points along the side of a rectangle to make the eye-stalk, plunger and gun of the Dalek.) To select a point, click Adjust on a blue square and it will go red as will the line between it and the next blue square. If you now drag the new point with Adjust you can do nasty things to your shape.

To add a point press F7 and one will appear halfway along the red line. Edit mode is best explored in your own time, a later entire article may do it justice. Watch this space.

For curved lines you get extra control points and lines – these are required because in *Draw* these curves are the famous *Bezier* curves. The orange squares show the trajectory of the line leading up to and going away from the blue squares. The greater the angle of the line linking the orange and blue squares, the more the line will bend from its old route. The longer the linking line between the orange and blue squares, the further the drawn line will go along its new route before being pulled back to the next blue square.

This Bezier function is not very intuitive and I for one find it hard to use freehand, so I often turn on the grid lock (Shift+F1) before using any curve-drawing tools so that the hard work of keeping the bends regular is done for me. That is how I drew the top of the Dalek.

There is no need for orange squares in the rectangle as an angle on a straight line can be saved without having to worry Mr. Bezier at all, the blue squares showing the control points are at the corners. So, with four blue squares in each object, to make any number of intermediate shapes the computer can do some simple sums to work out how to move each blue square (point) on

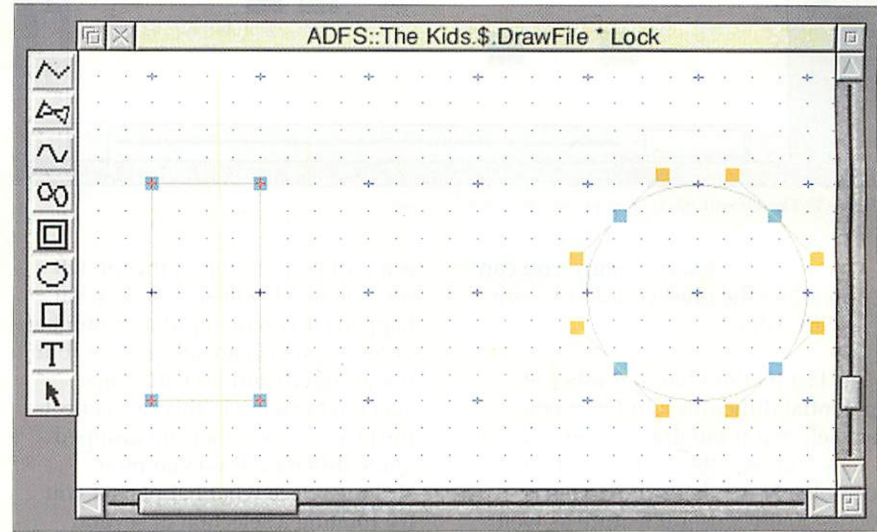


Figure III: Control points in two objects – faked, you can only edit one object at a time

one shape to reach the position of a point on the other. The points can be thought of as being sequentially numbered, each point matching the same number on the other object. If one object is twisted with respect to the other after it has been drawn then the mapping of the points must show this and the intervening shapes must twist as they go in order to match up. The Figure IV shows the same two shapes Graded in four steps but with the circle having been twisted by 90 degrees.

But what is a group?

A group is a way of joining two or more objects such that they can be manipulated in the same way as one single object. Each object will still be a separate entity within the group and can be separated by Ungrouping at any time. To group objects they

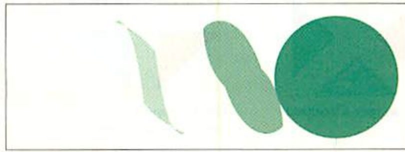


Figure IV: Grading with twisted objects

must first be selected. This can be done in several ways. If you wish to group all the objects in your *Draw* window press Control+A. That will put a bounding box around each separately. Typing Control+G will turn the multiple boxes into one bounding box surrounding all the objects.

Figure V shows four objects. They have each been selected. This could have been done in any of three ways:

- Clicking the Select tool in the toolbox on the left of the *Draw* window (shown highlighted here). Then clicking Select on one of the objects and clicking Adjust on each of the others – a long but effective method.
- Press Control+A to select all objects. Click the Select tool in the toolbox and deselect the objects you don't want by clicking Adjust on them, very useful.
- Clicking the Select tool in the toolbox and dragging a Select box: imagine the shape of a box big enough to surround all your target objects and "draw" it. If

Figure V: The different effects of operations on grouped and ungrouped files

you've selected too many you can deselect the ones you don't want with Adjust.

This last method has a number of potential difficulties: In *Draw* objects are selected if the dragged box simply crosses them – they don't have to be completely inside the box. This is occasionally a useful feature as well as being a potential problem. Watch out if your first click is on an object you will select and drag the object instead of creating a selection box. Press F8 to undo what you just did. In fact if you make any mistake, just press F8, the Undo key. If it turns out that you hadn't made a mistake after all press F9 to "re-do" it.

When you do a drag-Select any previously selected objects become de-selected first. The final tip with drag-selecting is that you can also drag-Adjust to add to the currently selected objects – or if you drag-Adjust over selected ones they become de-selected. Basically, with drag-Adjust, the status of objects is inverted, incidentally this works the same way with file icons in any Filer window. Anyway, getting back to Figure V, the top right set of squares is a grouped version of the top left set. The two lower sets show what happens if you manipulate a number of objects which are all selected (but not grouped) and how the same action (shrinking in this case) effects the objects when they are grouped. Quite different. It is even more striking to see what happens if you try rotating a selection of several objects and compare that to rotating the same selection after it has been grouped. They are shown in Figure VI selected with bounding boxes.

Select all problems

In order for interpolation or Grading to work the group must only have the two target objects in it, otherwise the Interpolate and Grade options will be greyed out in the (wait for it) Select menu. If you use Control+A then Control+G (or the menu equivalent) to do the grouping you are likely to have grouped in more than two objects and the morphing functions (for want of a better term) just won't work.

It only takes one little dot, possibly an invisible one, to muck it all up and so it is a good idea to click Select on one object and Adjust on the other followed by Control+G to make your group. Once all that is sorted out you have to worry about the number of points the objects have. If the numbers don't match then again the options will be grey. A trick here is to make a copy of the first object, muck it about and use it as the second one, then you know there has to be the same number of points in each. If all is well you will be able to get to the Gradations sub-menu. Enter a 4 to start with, but later try a figure of 80 or so.

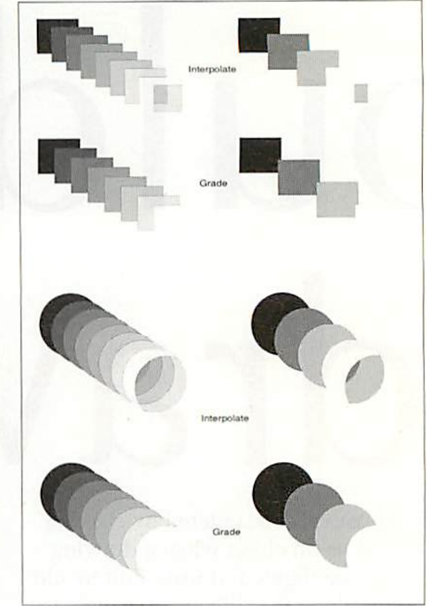


Figure VII: Various implementations of Interpolate and Grade operations

A simple rectangle to circle interpolation looks very complicated when a Gradations setting of 80 is used. Beware though, the higher the number the longer it takes to plot. There is a good side to this slight sloth though, watching a screen redraw itself when it has lots of these things all over it is rather fun.

The final set of images this month (Figure VII) shows again the difference between Interpolation and Grading with bigger settings. One final point, however, is that if you interpolate two objects with black outlines close together with many steps, the result will be black – this is because the main colour of the objects won't be visible between the black outlines of all the new objects formed. It may be useful to remove the outline completely choosing the Style->Line colour dialogue box and then clicking on *None*. Next month will cover the use of Text Areas, which is absolutely not the same thing as entering text at all. Oh dear me, no. END

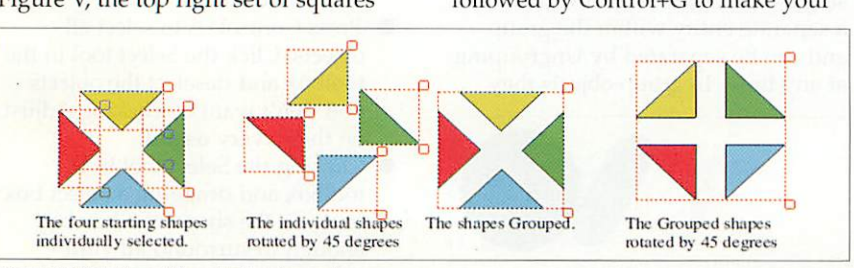


Figure VI: Rotation with and without grouping

Contacting me

Simon Anthony
draw@acornuser.com

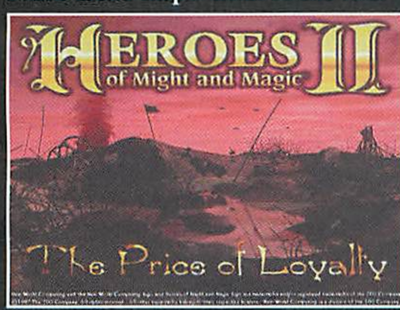
The Price of Loya

Alasdair Bailey gets heroic

This month we take a look at R-Comp's long-awaited expansion pack for their turn-based strategy conversion, *Heroes of Might and Magic II*. Incidentally, this title was released in Autumn 1998 but it was obviously so good that you lot voted it 'Best Game of 1999' in the recent RISC OS '99 show awards.

The *Price of Loyalty* expansion pack which has been designed by Cyberlore Studios adds four new campaigns along with 30 new stand-alone maps. A fairly standard box is supplied containing two RISC OS installer discs, the CD and manuals. A second copy of the nicely laminated data sheet for the game is also included for good measure.

Installation is a simple affair; the whole process is automated except for the optional new front-end graphics which must be inserted manually. Do remember that you'll need a copy of the original game along with about 40MB of free hard disc space before you'll be able to play *Price of Loyalty*. The in-game menus are unchanged apart from the addition of options to play the new expansion pack campaigns and stand-alone maps. Each of the four new campaigns has its own narrative and accompanying cut-scene graphics. From these four, two are mini-campaigns which contain only four levels and the other two offer a full eight levels.



Oops

The new campaign games are, on the whole, very addictive. That said, the second level in each campaign is generally an order of magnitude harder than the first. This discrepancy in the difficulty curve does detract from the gameplay slightly but also serves to offer more experienced players a good challenge.

The campaigns each include a number of new in-game elements. A range of new heroes along with new artifacts and locations have been thrown into the fray for extra gaming pleasure. The new artifacts which are scattered around the levels can have both good and bad properties so it is worth being careful about what you do and do not carry.

Two notable in-game locations have been added. Password barriers are a very worthy addition with the hero having to explore other areas to discover the password and then return to enter the password and discover the area beyond. A range of new recruitment locations have been added including altars for summoning water, fire and air elementals.

These make the building up of

Cheats 'r' Us

There must be something wrong with my e-mail, I've not had a single cheat through from you lot yet. Perhaps it's your post-millennial hangovers so I'll let you off this time. However, I am in possession of the following cheats for *Heroes of Might and Magic II* and *Quake*.

In *HoMM II* (or the expansion pack *Price of Loyalty*), type the following while playing:

32167	to grant the selected hero 5 black dragons
911	to skip to the next level
1313	to lose the game (why?)

Quake is full of cheats, here's just a few fun ones. Type the following at the console (press the ` key below escape).

Impulse 9	all weapons and keys, be warned though, one level has a door triggered by picking up a key, this won't work if you've used the cheat
God	toggles God mode on and off
Fly	allows you to fly through the level
NoClip	toggles clipping to allow you to walk through walls

That's all from me for this month, now over to Richard Goodwin who has been looking at an updated version of the *Eurofighter Typhoon* flight sim.

lty

sizeable forces in a small amount of time possible yet it could be argued that they spoil the game by offering large numbers of creatures to whoever has the money to buy them week on week. Nevertheless, I liked them simply because they offer a means of boosting the ranks of battle-weary heroes when far away from a friendly castle.

Many will be disappointed by the lack of new creatures or character classes. For a fairly expensive expansion pack such as this it would have been nice to have seen more than just new levels and a few in game elements added. However, the level editor which was included with the original game has also undergone a face-lift.

Support for the new *Price of Loyalty* elements is included along with a new random map generation algorithm. Random maps are useful for playing against people who know all the other maps but can be a little rough at the edges on occasion so need a little tidying before playing. Overall, the map editor is superb though.

The design of the new campaign maps is subtly different to that seen in the originals. For example, a fair few of the maps are designed to limit your expansion by not providing natural resources in a convenient manner. This limits construction and can force otherwise timid players to fight early on in the game for control of precious saw mills and gold mines. Generally, I found that leaving a mediocre hero close to a contested mine would deter enemies from completing their usual rounds grabbing whatever mines they could. The 30 new stand-alone maps take full advantage of the new features boasted by the campaign maps. Their downside, however, is that many of the in-game dialogues are poorly written. A couple of grammatical errors were noted along with a general lack of the style and consistency seen in the original maps.

Although I have voiced a few minor criticisms, the pack is still very playable and addictive. Plus, it's more *Heroes of Might and Magic II* so you can't go far wrong. Fans of the original should give this pack some serious consideration. For the rest of you, the original still retails at £35 and it might be worth talking to R-Comp directly about a special price on the two when bought together.

END

Eurofighter Revisited

It's not often that you get the chance to go back and re-examine a game after the initial review, but the new improved version of *Eurofighter Typhoon* gives me the opportunity to do just that.

Now hailed as for the Risc PC and RiscStation – possibly the first game to make this claim? – what was only StrongARM233-compatible now comes in four flavours: SA233, SA202, RPC700 and ARM 7500. Quite why four completely separate versions are required when a single self-adjusting copy, or a menu, would do just as well is anybody's guess, but hey, there's a whole CD to fill. A personal bugbear of mine – having to install new monitor definitions – is back, with different modes again from the previous version. Having to play around with the Boot sequence can be daunting for the newbie, especially as there's still no on-screen warning before the program quits if you haven't done it right.

It also means that – *shock!* – you have to actually *read the manual* before playing. This is a probably a good idea for a game of such complexity, but not a pleasant chore given how well this one is laid out and supplemented with extra pamphlets. It's a shame that, as I guessed previously, the colour has vanished from the manual, but the colour printing on the cover and on the CD itself makes the package seem more professional since last I saw it.

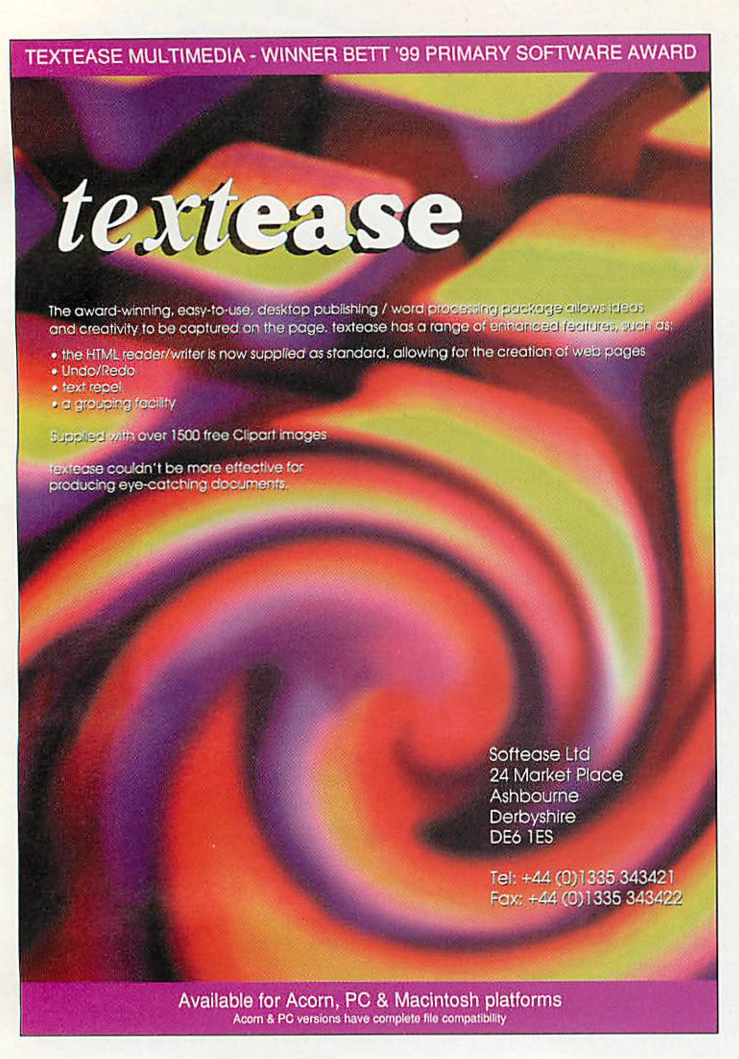


And so on to the game: a few points I saw fit to criticise last time out have been addressed, namely it's much easier to get into the game proper; there's not the insistence that you sit and watch a bunch of splash screens before getting started – there's even a few wipe effects for good measure, a little cheesy but then that never stopped George Lucas; and graduating from flight school before settling down to the missions is no longer a requirement. There has been some thought to making the game more exciting, with a new start-up menu allowing you to change the world from passive to "xtreme hostile", but ultimately this is a simulation, and has to be viewed as such – if you're looking for a kill-fest in the vein of *Chocks Away* or *Interdictor*, this isn't it. If you're looking for a straight simulation, well, this game is picking up a few fans in the RISC OS community.

Richard Goodwin

Product details

Product:	Price of Loyalty (requires full version of HoMM2)
Price:	£22
Supplier:	R-Comp Interactive, 22 Robert Moffat, High Legh, Knutsford, Cheshire WA16 6PS
Tel:	01925 755043
Fax:	01925 757377
E-mail:	rci@rcomp.co.uk
Web:	http://www.rcomp.co.uk/

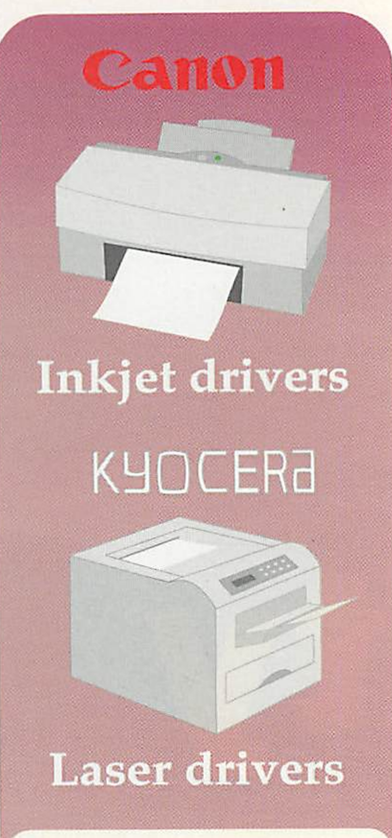


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Ne'er the TWAIN?



John Pettigrew scans the market

Scanners used to be large, expensive and complicated to use, and were strictly for the professionals. Nowadays they can be picked up in the High Street for as little as £40. The question is, how easy are they to install and use under RISC OS?

It's often said that SCSI scanners are better than those that connect to the parallel port but, to be honest, this isn't the case for most purposes if you've got a computer with a fast parallel port (Risc PCs/A7000s and possibly even A5000s). For example, a full A4 page takes less than 30 seconds to scan in full colour (24-bit) at 600 dpi on my parallel-port scanner, which cost just £70.

Setting up

The software to get a scanner working under RISC OS is supplied by the ubiquitous David Pilling. Called *TWAIN*, these drivers will allow any TWAIN-aware application to use any TWAIN-driven scanner transparently – a bit like the OLE used by some other programs. *TWAIN2* has been around for just over a year now and is a considerable improvement over the version 1, being much easier to use. *TWAIN* allows you to scan an image directly into many different programs – *Photodesk*, *Studio24*, *Sleuth* and so on – rather than having to scan the picture in one application, save it to disc and reload it in another. If you don't already have a suitable art program, David Pilling can also provide his *ImageMaster* program, which allows you to scan an image and process it before you save it in any of a wide variety of formats.

Installing *TWAIN* and *ImageMaster* is typically RISC OS, so merely dragging it from the floppy disc onto your hard disc will do nicely. The only care you have to take is that the *TWAIN* application must have been seen by the Filer before you can scan any pictures, so it's recommended that you put this in your Boot:Resources folder if you're using the Universal Boot.

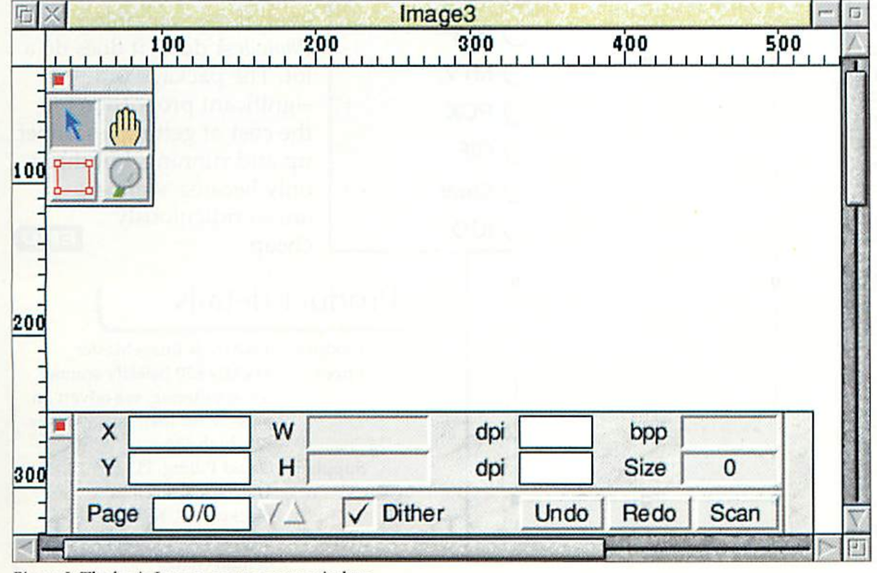


Figure I: The basic Imagemaster *scan window*

Scanning a picture

To scan a picture, first launch *ImageMaster*. Clicking on its iconbar icon opens a window (Figure I) that contains toolbars allowing you to scan a picture (click the Scan button). When you do this, *ImageMaster* launches the *TWAIN* interface (Figure II), which is where you decide which part of the image you want to capture and at what quality.

The first thing to do is get an idea of what your picture is like by clicking Preview. This performs a low-resolution scan of the picture so that you can mark out the specific area you want. *TWAIN* provides a button to outline the picture automatically, useful in some cases (as in this example – you can see that the useful part of the image is surrounded by a box).

TWAIN has a huge array of features to ensure that your scanned image is as good as possible (brightness,

contrast, gamma correction, histogram equalisation and so on) but isn't complicated. Usefully, any changes you make to the settings are immediately reflected in the preview image so that you can see what effect it's having without having to do repeated scans. Very usefully, it can even compensate for a picture you've put on the scanner that isn't quite orientated correctly by rotating it by up to 20 degrees.

TWAIN gives full control over the resolution of the image (how many dots the picture will have on the computer to each inch of the real picture) and the colour depth (whether each pixel will be black or white only, or a level of grey, or full colour), and even allows you to turn the lamp on or off.

These options will, however, depend on the particular scanner you have, because *TWAIN* is specific to your scanner; don't forget to tell David which scanner you have when ordering.

Another useful feature of *TWAIN* is that it allows you to save the raft of settings so, if you've got it tuned just right for a particular job, you needn't make all the changes individually next time you do something similar.

Processing the image

Scanning is achieved simply by pressing the 'Scan' button. *TWAIN* will scan the image and then pass it straight back to *ImageMaster* (or whichever program called for the scan). *ImageMaster* displays the image and lets you perform various actions to tidy it up. You can crop, rotate, scale or shear it, and apply filters to improve the image. The filters can be applied to selected areas or the whole image and include:

- various levels of sharpen (to make edges more obvious) and blur (to smooth out too-sharp changes);
- add noise, which can help to make computer-generated images look more natural;
- special effects, such as emboss and Laplace edge;
- colour filters, including making the image negative, making greyscale, swopping colour channels, changing format (including colour depth and colour model – even Netscape's model) and altering the balance of colours;
- finally, you even can create your own filters using a 55 grid.

ImageMaster's last trick is to allow you to save the picture in many different formats (Figure III). This is particularly useful because, although *ChangeFSI* does support some of these, it doesn't support them all. Each format has various configurable options, including EPS previews (selectable from EPSI or TIFF, configurable size), JPEG compression level and TIFF compression method (CCITT variants, LZW or Packbits).

The new version of *ImageMaster* (1.14, released in mid-October) is available from David's Web site as a patch. This adds support for CMYK JPEGs, so images can be converted between CMYK sprite and JPEG format. However, *ImageMaster* doesn't allow you to change between RGB and CMYK colour models. Other changes since version 1.12 include bug fixes for BMP and ICO (Windows icon files) and performance improvements.

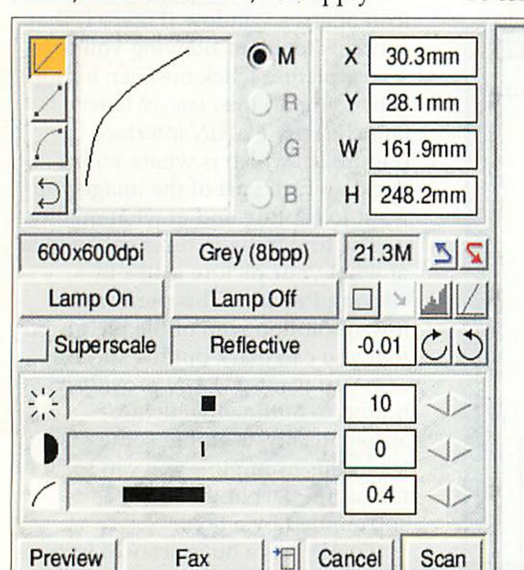


Figure II: Select the area you want to scan more closely

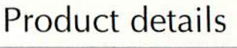
Summary

TWAIN and *ImageMaster* make an excellent combination. At only £35 for both, they're also excellent value. What's more, when you buy the pair, you also get several extra utilities from David, including:

- *Snapper*, for screen grabs with more control than *Paint* – snap areas, windows or the whole screen
- *Zero*, a photocopying (scan-and-print) program, which unfortunately only works with LaserDirect printers
- *Trace*, which will turn a sprite into a drawfile, and
- *D2Font*, which will turn drawfiles into fonts.

The combination of these last two, in particular, means that you can scan something, trace it and convert the drawfile into a font for your own documents. You're not even limited to letters, which could really spice up your documents.

Overall, this is an excellent product that is extremely easy to use and represents astounding value. *TWAIN* gives a better scanning interface than I've seen on Windows or MacOS, and although *ImageMaster* doesn't do everything something like *Photodesk* does, it does do a lot. The package is a significant proportion of the cost of getting a scanner up and running, but that's only because scanners are so ridiculously cheap. END



Product details

Product:	TWAIN & ImageMaster
Prices:	TWAIN £20 (specify scanner when ordering, see advert on page 37 for list); ImageMaster £20; both £35
Supplier:	David Pilling, PO Box 22, Thornton Cleveleys, Blackpool, UK FY5 1LR.
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There is a confession I should probably make at the start of this review – I have always liked S-Base, even in the bad old days of the bug-ridden version 1 when it was a Logotron product and S-Base looked set to take over the world.

You see there is a program used in schools called SIMS, this is a management program that does everything from keep pupils records, help with financial management, and make the tea at break times. It was designed for secondary schools when the idea that a primary school would even think of owning a computer would set teacher-geeks into uncontrolled fits of laughter.

But SIMS was overkill for a Primary school and Logotron saw a niche and Acorn agreed, so PIMS was born, a program to take over in primary schools, after all if the school's management system is Acorn-based obviously they would move that way for their teaching systems.

And PIMS was written in S-Base.

S is for S-Base

S-Base is to RISC OS what dBase is to Windows, a programming language that possesses specific database handling commands that make it "easy" to create database applications. That's not entirely true – in fact, the programming language is "S", the rest of the application is a development environment that allows you to implement S routines.

S is a strange language, initially it strikes you as a cross between BASIC and C, with its functions prefixed with '@' symbols like this:

```
r = @abs(-5)
```

which, of course, sets *r* to the absolute value of -5, which is 5. The variables (unlike BASIC or C) have dynamic types so the following lines:

```
v = "hello"
v = 10
```

Are entirely valid, no language compiler gets upset with you – although it might make tracking down a strange error a little tricky.

You have a full procedure and functional calls with fixed and returnable parameters, you have all the usual control structures (for...next, repeat...until, while...endwhile, if...else...endif, case...endcase) plus some useful surprises: continue – which jumps to the end of the current loop; break – which leaves the current loop; and ffor..next – which is a for...next loop that won't execute if the start value is beyond the finish value which is very handy because this:

```
if (start<end)
    for v=start to end
        (whatever)
    next
endif
```

becomes:

```
ffor v=start to end
    (whatever)
next
```

Windows and things

The creation of windows and menus is built into the programming language using a series of special commands, for example to open a window (a card) you use the command:

```
card new h,"test card"
```

The variable 'h' is given the handle of the card, which you can use to refer to the card in future. The name "test card" is the name of a card held in the applications resources. But where does that appear from?

At this point we have to jump from S to the S-Base development environment. Clicking on the S-Base iconbar icon brings up the New Application window, from here you name and drag the icon to the directory of your choice. A basic application is created and an Application Manager window appears, from here you can go two ways: Into SAM, or into the nitty-gritty.

I'm going to follow the nitty-gritty route, SAM is a quick and easy way to create a database application but it's not customisable. You might, for example, have a huge CSV file that you want to check and maybe extract some data from. Using SAM you could automatically import the data and have the system build its own cards, menus and indexes to handle the data. But to customise it you have to get down and dirty – and ignore SAM completely.

Style is everything

By clicking with Adjust on the "Other" icon in the Application Manager you get a new window which lists the fifteen main resource types which go to make up a complete S-Base application.

A *File* is a collection of records and each record has a number of individual fields, each field can be any user-defined data type (of which more further down).

Each file can also have zero or more *indexes* and every index can be based on one or more fields in ascending or descending order; and every index field can have a whole series of other operations and processes applied to it.

A *relation* describes a relationship between two files, used in relational databases, this section is still under development although relational database facilities can be put in by the programmer.

A *format* is either a Card, a Table or a Report: A card is generally used to display information about a single record, but can be used for any normal window function; a table specifically displays multiple records in a scrolling display; while a report is an amazingly versatile system used for printing information. Every format contains *elements* which are used to display information, provide prompts and so on.

A *query* is a resource that is used to filter records, it is attached to a particular file and can have a number of lines specifying conditions such as "age>22". When a query is run each record in the file is checked and if it fulfils the conditions it is added to the query – there are functions to examine the results of a query run.

Constants are precisely that, they allow the programmer to give constant values a name, and then refer to that value by the name in other resources.

A *Program* can be considered to be a top-level routine usually activated from a primary toolbox.

A *Handler Set* is a collection of handlers for specific events, it allows the handlers for a specific format, or format element, to be grouped

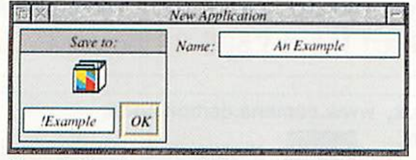


Figure I: Creating a new S-Base application

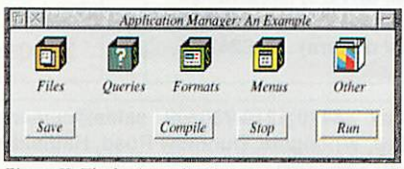


Figure II: The basic application manager

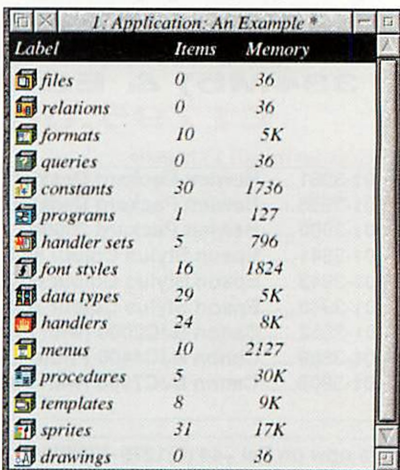


Figure III: The application resource list – what a lot there are

Back to S-base

Steve Turnbull re-visits an old friend

Figure IV: Creating a file resource – lots of interesting options

together and attached to an item.

Font styles allow the programmer to design and name a particular style for use in formats. By defining a font style it can be changed globally by just redefining the style and not having to change each use of it individually.

Data types the programmer can create integers of 1-, 2- and 4-byte length, floating point numbers of 4- or 8-byte length, dates, times, strings of 1 to 255 byte length, structure types (based on file records) or "external" data types based on any filetype. But more than that, the way the data type is displayed is fully controllable including a "picture" of how positive, negative and zero values are shown (for example, a type could be defined to show negative currency with brackets instead of a minus sign). Input validation can be set-up, subscripts for array types as well as multipliers and decimal places shown.

Handlers are the actual code fragments used to handle events in S-Base, for example, a Click handler might be attached to a card and whenever the card is clicked this handler gets called, it could then determine which button (if any) had been clicked and call a procedure to act on it. Other events are things like menu makers, menu select, key pressed, file dragged in and many more more specialised ones.

Menus are for static, pre-defined menus, although dynamic ones can also be created as you go along.

Procedures are collections of code, which can be divided up into arbitrary sections for convenience.

Templates are another style feature: every format must be based on a template and a template could be the basis of more than one format. Templates are used to place icons such as menu pop-ups, action buttons, buttons with sprites, radio and option buttons and so on. Each icon itself is based on an icon style which can be re-defined, hence changing the style of the "Okay" button will alter it on every format it appears.

Sprites contains any sprites used anywhere in the program, likewise the *drawings* resource holds all drawfiles and Artworks files. Phew.

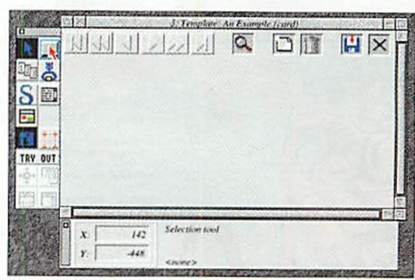
S-Base versions

Personal	Doesn't create standalone applications
Developer	Can create standalone applications, but not network ones
Network	Creates network applications

Putting it together

At the simplest level you create a file with its fields and indexes, then a card to display it in various card elements. The card has a handler set attached which deal with the various events attached to that card, you add the ability to load and save records from and to the file and you're off.

The problem always was, and unfortunately still is, that S-Base has a learning curve like a vertical cliff-face. For someone new to programming it is virtually impossible to get to grips with. It was in response to this that the SAM system was developed but, to my mind, SAM is a dead end. It's not a tutorial and it cannot be used as learning tool – it's not something you can develop and customise, learning skills as you go along. It is utterly obscure to the untrained eye.


Figure V: The visual editor for template design

But all is not lost, S-Base was finally pried away from Logotron this year by its author, Simon Glass, and is being sold once more in its various versions. The software and documentation are delivered online as are upgrades which can simply be downloaded and run – registered owners have a special file without which the development software will not run.

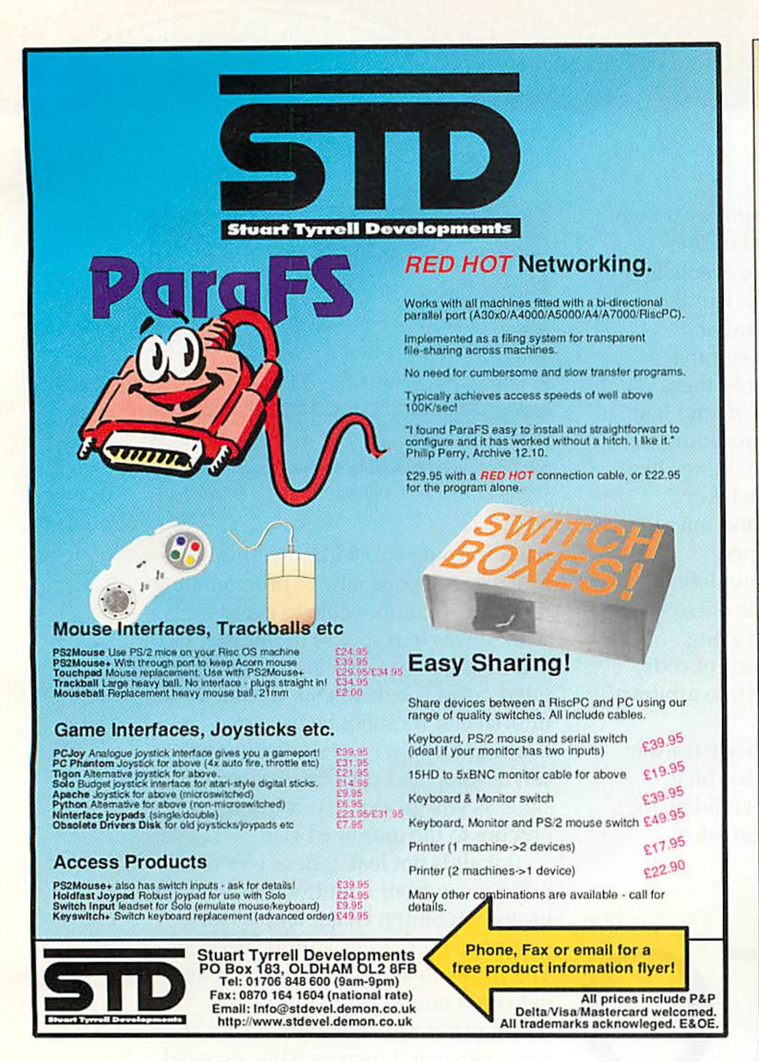
It's also being actively developed and updated – it's currently on version 2.4i. There is a mailing list (details from the Web site) which many expert S-Base programmers frequent it isn't a very busy list so doesn't add to the e-mail load and also demonstrates that S-Base is very stable. Plus Simon is happy to implement new ideas where they are genuinely useful – in fact he's put in a few of mine.

Summing up

This quick review cannot truly do justice to what is an absolutely huge application: the number of S commands; their variants and how they interact; the types of resources; the clever things you can do with indexes; and so on. We will be starting a more thorough tutorial on S-Base soon that will give you the basics you need to create real applications. END

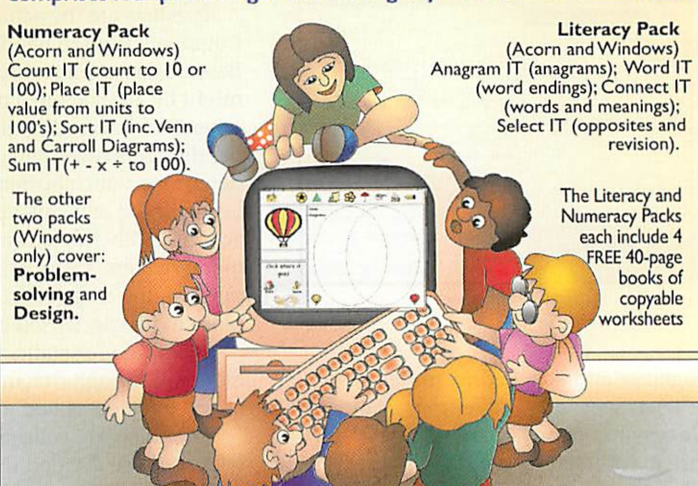
Product details

Product:	Personal £59, Developer £149, Professional £249 (4-user network)
Supplier:	Bluewater Systems Ltd, PO Box 13889, Christchurch, New Zealand
Tel:	+64 3 3779127
Fax:	+64 3 3779135
E-mail:	s-base@bluewaternz.com
Web:	www.bluewaternz.com/s-base



SIXTEEN reasons why EVERYONE can DO I.T.

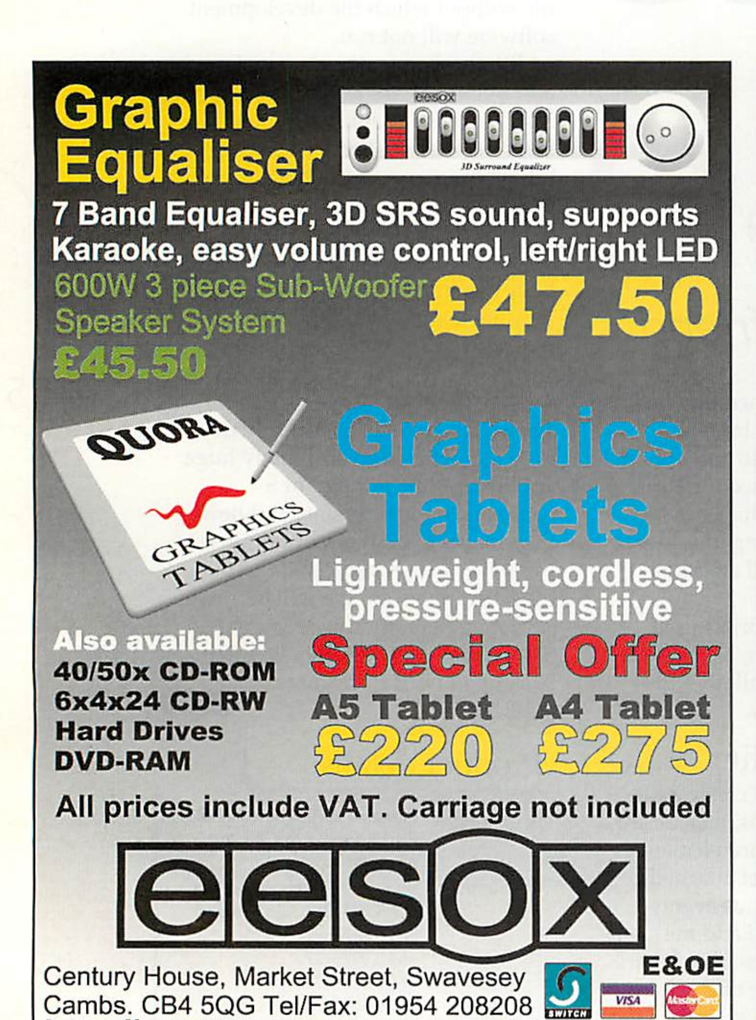
Designed for primary children from 5 to 11, KS 1 and 2, Do IT comprises four packs to get I.T. moving in your Home or Classroom.



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Numeracy and Literacy (Acorn or Windows) £30 each, or both for £50. Problems and Design (Windows only) £25 each, or both for £40. All four packs (Windows CD only) £60. Add VAT and p & p £2.50 first item, 50p each other item. Windows packs HALF PRICE if bought with Acorn. Available on 30 days approval. Free Demo CD.

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Awards, awards, awards

Argosphere are following the success of its national Best School Web Site competition with the launch of the Argosphere Internet Awards scheme. Children and schools are encouraged to submit entries for four categories: Best School Web Site, Best Home-School Web Site, Best New Web Site, Best Under-12s Web Site.

A simple form is available on www.ArgoSphere.net and every month a winning entry will be selected within each of these categories with an overall winner announced at BETT. Each category is judged on quality of design, navigation and content while the judges will also be looking for evidence that sites are instilling a sense of communication among pupils, parents and teachers.



"Last year we received hundreds of entries for out Best School's Web Site Award. The standard was incredibly high and I remember thinking what a shame it was that we could only reward one," commented Ian Goodall, "I sincerely hope the Awards will act as a forum, bringing attention to the importance of the Internet as a learning tool and encourage schools and children to have a got at developing their own online communities."

Precocious web browsing

Meet MissDorothy.Com a nine-year-old cyber child with her own virtual reality. Dot's remit is to educate and introduce families to the Internet as they follow her adventures. Already adopted by Nelson Mandela for his Children's Fund in South Africa, Dot is billed as an educational tool with an edge.

Dot is joined by her family and best friend, her faithful dog, Wizard, but there are also animals to encounter on her adventures such Mister Mouse and a black cat called Cursor..

Other characters include a Net-surfing Californian, Floyd, a family in Barbados, and while her friend Genie Livingstone has parents who are computer literate, Dot's mum and dad are not a little afraid of computers. Your first port of call is Dot's bedroom which gives you access to her adventures (updated three times a week), a calendar of events such as the celebrities she'll be interviewing in the coming month, a secure chat room, access to news courtesy of ITN, games and puzzles, interviews, and finally information storyboards showing how to send e-mail, shop online and so on.

If you want to test the water of this ongoing and interactive web soap you can visit www.missdorothy.co.uk though the full service will not be ready to go live until March.

Unfortunately for us MissDorothy.com requires Flash capability so the current software can't cope however, print versions of Dot's adventures are available now, soon to be followed by audiotape versions.

In brief

Increasing effectiveness

If you didn't make it to BETT this year, you might have missed BECTa's NGfL Managed Services scheme which is a new way for schools to access ICT equipment and services, providing a complete purchasing package which removes technical issues and concerns from schools.

At present 12 companies have become certified NGfL Managed Services suppliers and a new batch of certifications will be announced this April. For more information contact BECTa on 01203 416994 or see www.becta.org.uk

Maths is key

Sherston Software (01666 843200) have a new addition to their Keywords series: *Maths Keywords – Numbers and Calculations.*

The aim of this CD-ROM is to develop understanding of Key Mathematical vocabulary. All of the Keywords are relevant to the National Numeracy Strategy, and are cross-referenced and linked with other words where appropriate.

Having referenced one word, children can follow an inter-linked trail of words and images, learning as they go. Words are easily located using index or search facilities and there is a range of images to supplement the text.

A book version is also available written by Karen Bryant-Mole and published by Wayland Publishers but the benefits of the software include colour-coded icons and narrated 'help' available on every screen.

In addition, children can choose to hear all text read aloud, making the CD suitable for all reading ages. As well as helping children to understand essential mathematical vocabulary, this CD-ROM also teaches them valuable information. The price is £29.95.

Contacting AU

Pam Turnbull:
educ@acornuser.com

Variety is the spice of life

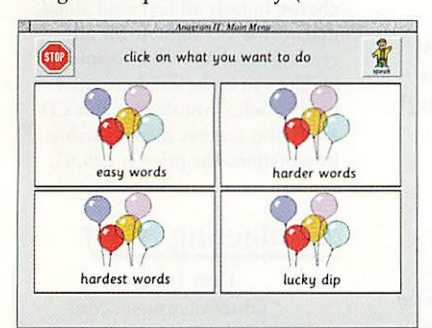
Pam Turnbull looks at some new teacher's friends

Don't get me wrong, I love the way education software has developed, moving towards better graphics and sound as the hardware has developed and for that quality to be matched by quantity due to the relative cheapness of storage media.

However, from a practical point of view sometimes I need a simple program to practice a specific task and this is when I find myself trying to create something in *TextEase* or looking longingly at my old BBC B and the stack of now unused 5.25in discs. Not nostalgia but a practical need for a suite of specific programs which fit into the requirements of Literacy and Numeracy hours and one computer between 33 children.

Enter Topologika and 16 programs available for Literacy, Numeracy, Design Technology and logic/problem solving. Available on floppy disc these programs provide activities for Key Stages 1 and 2 as well as Special Needs support.

With no further ado let's dive into the *Literacy Pack* which covers Key Stage 1 learning objectives. Four discs need installing which is a longish but painless experience. You are then presented with the choice of four programs: *Anagram IT*, *Connect IT*, *Select IT* and *Word IT*. *Anagram IT* provides easy (CVC words), hard (blends), hardest (magic-e and double vowel) and lucky dip (longer words and proper nouns) puzzles. There are 10 words sets within each level, a speak icon to hear the instructions and a timer to show you how you're doing. The window is full of possibles and underneath is the word you need to decipher and match. Click on one of the possibles to hear it and make your choice. Simple and effective, there is also a choices feature which lets you turn off the speech option and sets the reward animations, timer and so on.



The format is the same for the rest of the programs. For instance, *Connect IT* helps with the understanding of word structure with activities called: compound words (snow+drop), words within words (be-wild-er), finish the words (blan+ket) and find the word which looks at definitions and meaning. *Select IT* looks at words and meanings in more detail by matching lower and upper case words, finding opposites and pairs as well as looking at similes.

Finally *Word IT* has the job of dealing with sound families. Here the four activities on offer ask children to match pairs using letters and CVC words, fill in the missing letters in easier then harder words including blends before moving on to to sorting words into sets using spelling patters. All very easy for children to get to grips with.

A leaflet accompanies each set of discs but in addition you receive a set of photocopiable worksheets. Now these aren't just a few sheets bunged in to packaging for extra Brownie points, rather 40 bound, A4 sheets for each program – giving you 160 sheets for Literacy alone. If your need is for support in the Numeracy Hour open up the *Numeracy Pack*. Here you'll find four more programs loaded and accessed in the same style. *Count IT* provides four activities asking children to count and add to 5 and 10 looking at sums before making their choice from the numbers on offer.

Place IT looks (unsurprisingly) at place value. There are eight activities here looking at numbers from 10 to 20, 50 and 100 before moving on to counting up to 100. This has a gentle learning gradient which provides good practice, independence but a safety net of a given set of answers. Moving on to *Sort IT* children are sorting shapes and pictures as well as trying their hands at Venn and Carroll diagrams.

Programs can be accessed in any order so your first port of call might be *Sum IT*. Here number bonds are stretched with six activities practising addition, subtraction, division and multiplication to 10, 20, 50 and 100. A tables grid allows children to place a number and to see its factors while times tables are tested by asking for sums to be answered using a 100 square. Options here are a little more comprehensive allowing teachers to configure the range of the tables grid, 100 square and number bonds.

The programs in the Numeracy suite are more varied to look at and use than in Literacy. Both these packs are primarily aimed at Key Stage 1 learning outcomes but I have found them useful and motivating for Year 3 and 4 children with special educational needs while they have a part to play with Key Stage 2 children who need their confidence building when it comes to spelling strategies or mental number-bond work. To mis-use a phrase: *Can I have some more, please sir?* Science would be good and how about some on History and ICT? For now you'll have to wait until next month for the review of DO IT's Design Technology and Problem Solving. **END**

Product details

Product:	DO IT – Literacy and Numeracy Packs
Supplier:	Topologika, 1 South Harbour, Harbour Village, Penryn, Cornwall TR10 8LR
Tel:	(+44/0) 1326 377771
Fax:	(+44/0) 1326 376755
Ages:	7+
Price:	£20 per pack
Email:	brian@topologika.co.uk
Web:	www.topologika.co.uk

Witches, murder and moving forests

Pam Turnbull looks at some new support for the Scottish play

There was a time when Shakespeare was definitely in the secondary school realm, however, these days you are as likely to see a primary production of one of his plays. Partly this is due to the recurring themes of murder and justice popular with children, and partly because the teaching of the Bard has undergone a change in the last few years making him less dry and more fun.

Enter a resource for schools about to embark on Macbeth. This is the latest is Computer Kids' *ICT Across the Curriculum* series, the earlier titles being: *Word Processing Tasks and Templates*, *Pictorial Databases*, and *Spreadsheets through Time*, this one has a little more child appeal.

What you get are a series of *TextEase* files – a reader for *TextEase* is included if you don't have your own copy. There are over 30 files altogether and these split into two main sections *Topics* and *Clip Art*. The former collection have titles such as Birnam or Poster while others are less evocative and useful, luckily each comes with a thumbnail image of the scaffold you'll be using and a brief note on what this file will be looking at.

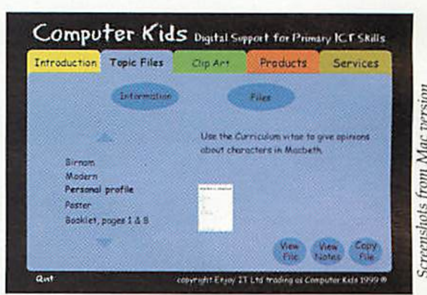
For instance, *Poster* asks you to advertise Macbeth in traditional style leading to an understanding of how words and expressions have changed over time; *Birnam* asks children to re-tell in narrative text the advances of the Great Birnam Wood on Dunsinane Hall; *Personal Profile* uses a CV format to hold views and opinions on the characters in the play; *Shakes* needs you to re-arrange the titles of Shakespeare's plays; while *Witches* requires students to structure a poem in the form of a spell creating a particular mood or feeling.



Other topics on offer require scenes to be written in other voices, key events to be rearranged, a comparison of two points of view to decide whether Macbeth should kill Duncan, editing to be done to The Shakespearian newspaper, a re-writing of Lady MacBeth's nervous breakdown using a script style and direct speech, a comic book style re-working of the murder scene complete with speech bubbles, use your persuasive language skills to help Lady MacBeth convince Macbeth to kill his King or how about preparing a play review full of personal opinions and presented in a tri-fold booklet?

As well as a thumbnail image and brief outline you can open or save a specific file or access the teacher's notes. These are detailed and shows that each topic file is focusing on a specific literacy with the notes linking this to the National Literacy Strategy, the Programme of Study for ICT, QCA Exemplar and Scottish 5-14 Curriculum.

So if you opt for your class to summarise passages and chapters using narrative text, you'll be provided with a *TextEase* document outlining the learning objectives, learning outcomes, filenames of the topic and clip art you'll be using, the software required, the time needed for the activity, as well as detailed notes on the teaching activity, where



Screenshots from Mac version

this lesson would fit into the NLS (Year 6, Term 1 for the record) with detail as to the range, word, sentence and text levels aspects covered.

Also there is information on how this fits with the word processing and desktop publishing modules of the Primary Information Technology Competence Certification scheme. Plus the ICT techniques and technical vocabulary used as well as references to the programme of study, QCA exemplar and Scottish guidelines.

The scaffolds/worksheets have been drawn specifically by Computer Kids for the resource pack. These all follow the same style and as well as being used to create your poster, poem, cartoon strip are available separate in the clip-art section of the program.

A nice touch is that if there is any image you need but isn't there, Computer Kids will draw it for you – they have resident artists – and send you a copy, but retain the copyright of course. A lot of thought has gone into the production of this CD-ROM and teacher's notes are the most comprehensive I have ever seen. END

Product details

Product:	Macbeth
Price:	£25
Ages:	7+
Supplier:	Computer Kids, P.O. Box 21, New Brighton, Wallasey CH45 2NZ
Tel:	0151 638 1296
Fax:	0151 638 8255
E-mail:	ajones@compkids.com
Web:	www.compkids.com

Rambles through Acorn



Mike Cook restrains himself and helps out

Well I was going to say something about Microsoft but I don't really want to dwell on trailing-edge technology this month so on with the questions.

Thomas Shevels offers some advice to Christopher Rayson from the December issue, but he has what can only be described as a dodgy CD drive experience:



"DOSMAP within Windoze seems to please itself not only on file-typing JPEGs but also other file types, especially if you acquire your files via the Internet. The easiest 'cure' is to open the DOS directory or disc on the Acorn desktop, Select All files, then Menu/Set type to &C85 [for JPEGS] or whatever they should be.

"I have my own problem I wonder if anyone can sort. My Risc PC [SRP11] has a brand-new 48x CD drive which will only read data immediately after boot up. After that it reports drive empty despite the stupid thing whizzing round at break-neck speed. This is a brand-new unit, which replaced the original 8x CD as fitted by Acorn, which also displayed this useful feature!

"Something is unplugging the ATAPI module, but what could it be? The machine is fitted with a SCSI card, a PC486 card and a network card running under Netlinks. These were all in place with the old CD drive.



As the old CD experienced the same problems then you can rule out a hardware fault. I think it is probably time for a good old spring clean of your boot sequence and hard drive. It is always best if the top level of your hard drive contains only folders, in that way you don't have anything booting that you don't know about. Also examine the files inside your *!Boot* folder and move to another location everything you don't know about.

It is likely that you have files left over from things you once installed but now no longer have. It could be that your SCSI card has a built-in CDFS and this is interfering with ATAPI module. I had a similar problem with my machine but I could never read anything from my CD. That turned out to be a file in the *!Boot.Choices.Boot.Tasks* folder turning off my ATAPI module.

Karl Morley is being put to the test by his work colleague:



"I have been given the task of 'resurrecting' a training machine at work, a task which I have mostly completed with a little knowledge of the earlier Archimedes – I own a SA Risc PC – and a lot of trial and error. The machine is an Archimedes 440/1 with 4MB Memory, ARM2, running RISC OS 2.00. Installed in the machine is a Lingenuity SCSI Card (V1.37) and a Watford Electronics IDE Interface running IDEFS 2.10, dated 07 May 1992 – the ROM chip on the IDE Interface is marked *A310 2.10*.

"The problem is that I am unable to get the machine to recognise the IDE drive, which contains some of the training modules. The *IDEDRIVES command reports the card present but "0 drives connected". I have attempted changing to a drive which is known to work, and a new IDE cable, but the results remain the same. The drive is spinning up when the computer is powered, and the SCSI drive works correctly. There is no difference in the IDE drive when the SCSI podule is removed.

"I have only limited knowledge and can't seem to locate Watford Electronics anymore. Have you or anyone else experienced anything similar, or could suggest possible alternatives to allow the machine to be used properly. Any suggestions would be of help. Also, should there be any accompanying discs for IDE drive formatting and so on, with the Watford IDE Interface? If so, does anyone know of a source for these discs, as they are no longer present with the machine."



Sadly Watford Electronics no longer support the Acorn market and haven't for some time. Last time I heard they were located in Luton you could try them but I wouldn't hold out much hope. It is more than likely that this interface faulty or needs some additional drivers. As you need the data on the disc the last thing you want to do is to format it. You have done the sensible thing in seeing if the drive works with the SCSI card removed and at this stage an upgrade to RISC OS 3 is likely to give you more problems than it solves.

One way would be to try and use the drive on a Risc PC with it's built-in IDE interface and try to get the files off that way. However, IDE is not a very tight standard and it is subject to accidental (and wilful) misinterpretation by disc manufacturers so it



might not work and still be a perfectly viable drive. I think this is where the usefulness of user groups come in. With a large membership there is normally some one with similar equipment to allow you to do some comparative tests.

William Jackson likes to look up at the sky and wants his computer to help:



"I believe that you, like me, have an interest in astronomy, and I was wondering if you knew of any programs apart from *NightSky* from Clares, and *Copernicus*. Also do know of any hard/software packages to use with a Risc PC for pointing a telescope using co-ordinates or object names, and then tracking the object. If there are, is the length of the connecting cable critical – beyond a certain length it will not work or accuracy is compromised. If there is something that will work is there a program which will capture CCD pictures from the telescope, building the image over a period of time?"



Aside from the two programmes you mention there is *Orrery* from Spacetech which shows how the planets move in relation to each other. Although it is getting a bit long in the tooth now there are some nice exercises that are useful for directing class study. There is also *Sky Guide* by Alan Senior which has some good features and also the freeware *ROCchart* by Ric Hudson. This last one – while being stand-alone – is designed to read the database from a PC program's CD.

Unfortunately there is a lack of full feature commercial astronomical programs on this platform when compared to the PC and Macintosh. As for telescope aids, the only one I know of is the project I made published in *Acorn Computing* from October 93 to February 94. This used optical shaft encoders and an electronic display at the cold end of the telescope with the computer sat in the warm connected through the RS232 cable.

While it did not move the telescope it did show you the celestial coordinates of where it was pointing as you moved it round which let you set-up more easily. Modern telescopes have both coders and motors integrated into the design which is far more satisfactory than retrofitting motors. However, if you want to go down this route there is an excellent book, *Microcomputer Control of Telescopes* by Mark Trueblood and Russell Genet published by Willmann-Bell. It describes what is needed to construct your own system and also what pitfalls to avoid. The same tale is to be told for CCD imaging, as far as I know nothing is available ready-built for the Acorn market. However if you fancy the DIY route the quirkily named "CCD Camera Cookbook" by Berry Kanto provides you with plans and circuits. The software sadly is for a PC but there is enough information to write your own. Some companies in America also supply the machined mechanical parts for this project. Try to get hold of a copy of the magazine *Sky and Telescope* from one of the larger newsagents chains for more information.

Philip Draper has been delving through some old back issues of this mag:



"Not sure this is really your department – but it is not obvious whose else it is. Someone asked me to try out a piece of software (a module that allowed background printing) that appeared on the March 94 *Acorn User* disc. I astonished myself by finding the disc, but then was frustrated. My computer could read the root directory of the disc, but an attempt to open the *!Info* subdirectory generated an error and froze the filing system.

"The directory display for my hard disc disappeared and could not be recovered without a Control+ Break. This also happened when I tried to look at the directory with Shift+Click, or to open it by way of the Index program on the disc. The disc verified correctly. A control experiment with the February 94 disc gave an even worse result; this froze the computer just by clicking on the floppy drive icon. Have you any idea what is going on? My guess is that the clever system of indexing used on those old cover discs is not compatible with StrongARM and/or RISC-OS 3.7, but I never remember this point being mentioned in the magazine."



The problem is probably the ArcFS compression system, while my copy of the same disc didn't lock up the computer I did get an error box. The solution is to get a more modern disc with ArcFS2 on it. Double-click to load it then put the old disc in.

END

Rich Sage has a hi-tech minidisc and wants more out of it:



"I was reading your articles on the sound sampling project, and I was wondering whether this would be feasible: I have a Sony Minidisc deck at home and it will give the usual Optical data out from a port on the back. I also have one of the optical cables. Would a small circuit be able to be produced (with some sort of infrared photo diode) so that I could transfer data digitally from the minidisc deck to the computer, through the parallel port, and then save it as a raw sample at the end?"



To start off it's not an infra-red optical but a visible one. If you squint down the connectors when it is outputting something you will see it glowing red. The digital standard for audio is called SPI/DIF and is a serial representation of the digital data along with headers and frames and things like copy-protection bits. This stream can come in two physical forms optical or electrical, and converters from one form to the other do exist but cost rather a lot.

You can do a home-built conversion quite easily – keep your eyes on my hardware column – and this would allow you to record on your minidisc straight from many computer CD drives. However as to feeding in the information into your computer there is a small snag. The serial data stream runs at about 1.2MHz and this is simply too fast to input into the parallel port no matter how you access it.

It would be possible to turn it into parallel data and feed it in that way but you are still pushing the limits of your machine and anyway the chips to do the conversion aren't readily available yet. They do exist but so far they are only supplied to OEMs, I can get my hands on some at Pace but there's no point is doing a project that no one else can do.

Contacting AU

Mike Cook:
rambles@acornuser.com

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Bargain Box

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50Mb Quantum	1	£12.92
60Mb Conner	1	£14.10
80Mb Western Digital	1	£17.62
110Mb Conner	1	£19.97
130Mb Seagate	2	£23.32
160Mb Seagate	2	£25.85
170Mb Seagate	1	£25.85
200Mb Conner	1	£30.55
200Mb Western Digital	2	£30.55
230Mb Conner	1	£31.72
250Mb Fujitsu	3	£35.25
250Mb IBM	2	£35.25
250Mb Western Digital	1	£35.25
260Mb Seagate	2	£35.25
540Mb Seagate	6	£41.12
630Mb Quantum	2	£45.82
730Mb Quantum	2	£58.75
3.2Gb Fujitsu	1	£74.02
8.4 Gb Fujitsu		£99.87

An IDE interface suitable for most of the above drives can be purchased for only £29.37 when bought with one of the above drives. Larger units (>500Mb) may require partitioning software when used on pre-RISC PC machines. Please phone for details. A mounting bracket is an additional £1.76. Example price: 40Mb Seagate with interface and mounting bracket £42.88.

Various

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Finding your way by bus

Mike Cook gets a ticket to all the stops

Last month we saw how we could use the Dallas One Wire bus, or micro-LAN, to communicate with a single device, this month we'll see how we can utilise any number of devices on a single wire bus.

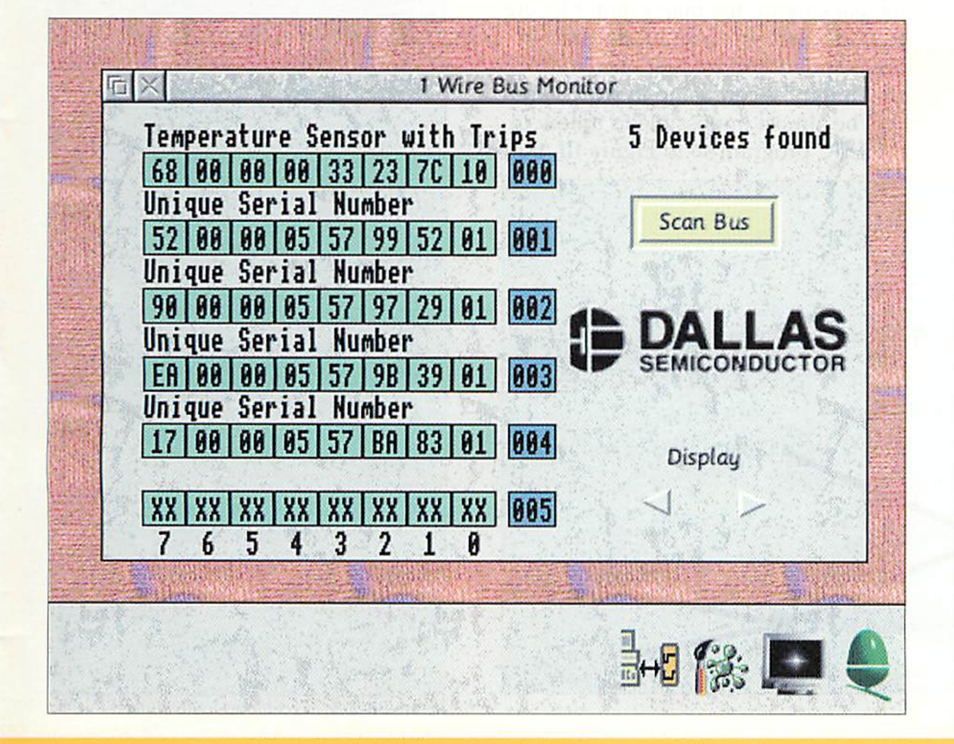
Initially the solution sounds quite simple, before you give a command to a device you select it by sending its unique 64-bit serial number. However, finding a device's identification number is not that easy. What you could do is to connect up each device one at a time to the bus and use the program given last month to read its serial number. Then mark the devices in some way like a blob of paint or a sticky label and make a note of the numbers on a scrap of paper that you eventually loose. It's quite straightforward but not very high tech or user friendly.

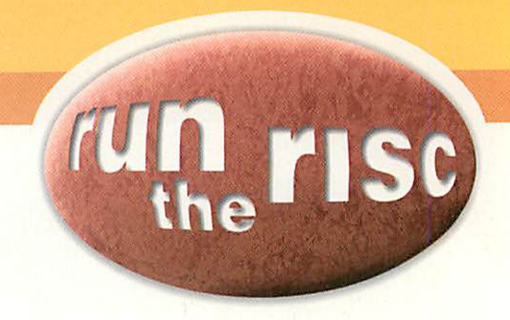
However, what you can do is to get the computer to interrogate the device itself. If you read the data sheets and application notes on the CD you will see there is a procedure for finding a single device's number. Unfortunately no help is given when it comes to making sure you have found all the devices on a bus. It turns out to be not quite as simple as it seems and took me quite some time to sort out.

The basic procedure for finding a device's number goes like this, you first issue a command that tells all devices to output their identification one bit at a time. After this the first read of the bus sees all the devices putting out the first bit of their identification number and the second read outputting the inverse of this bit. What this means is that all the devices shout at once.

Of course if the first bit is the same on all devices there is no problem we read back a zero followed by a one if there is a zero in that bit position or a one followed by a zero if there is a one. The problem comes when some devices have a zero and others have a one then you will read a zero followed by a zero. This tells you there is a bit conflict, that is, some devices have a one in this position of their identification number and others have a one.

What happens next is the computer writes a value back to the bus, zero or one, and all the devices that sent that value turn themselves off and take no further part in the proceedings. The next two reads see the devices still active doing the same thing with their next most significant bits. After 64 such cycles you have the identification number of one device, and all other devices turned off. Then by issuing a reset to the bus you start again to find another device. That bit was quite





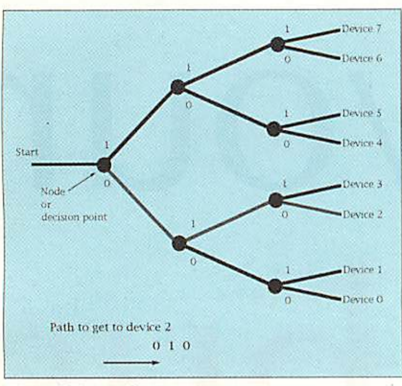


Figure I: A tree diagram

easy to implement, but how does the software know when it is finished finding all the devices on the bus? The clue lies in knowing what device to switch off when a bit conflict occurs, that is whether to disable devices giving a one or a zero. I did thrash about for some time before I hit upon a model for this. Basically what we have is a data tree, Figure I shows a simplified version of this.

Each time we have a bit conflict we are at a node where we have to decide to go left or right, that is: disable devices with zeros or ones in that particular bit. Note that most of the time all bits will agree so we don't have a node for each bit of the identification number.

What we have to do here is to plot a course or path through the tree to a device. We can see from Figure I that the path to device 2 is right, left, right. If we had the maximum theoretical number of devices on the bus, that's 2^48 we would potentially need a 48-bit path map to find our way to all devices. However, you can't have that many because each device is unique and I have six of them, ha.

In practice the data tree is more likely to resemble Figure II with branches missing. So what we need here is an algorithm that ensures that every device or leaf of the tree is visited. I used a variant of the maze traversing, wall-banging algorithm. First of all I set my map to always take the right branch at a node, it's easy just set it to all zeros. Then I set up a pointer to the start of this map, as I work my way through an address at each node or bit conflict I look at the map to tell me what devices to turn off, this is the inverse of the direction I want to proceed in.

Then I increment the map pointer to tell me what decision I should make next time. At the end of a run, that is when I have found a device identification number, I move the map pointer back one place and if the last decision was a zero I change it to a one and start all over again. If however it points at a one I keep on backing up the pointer until it points at a zero. When it does I make that bit a one and all bits following it a zero. In other words I always make sure that for every new left turn all the turns after that will be right. In that way you are guaranteed to visit all available parts of the tree no matter how many devices are on it.

It is also easy to spot when you have finished, this occurs when you are backing up the map pointer trying to find a zero and you hit the start of the map without finding one. Well, that might be confusing in words and will be almost impossible to follow in a BASIC program so in Figure III, the concept is shown as a flow diagram. As you might know I don't make much use of flow diagrams but this is one place where you definitely need one.

I have implemented this both in a simple BASIC program and a desktop application. Not only do these scan the bus and print out all the identification numbers of devices they find but also identify each device type. This is possible because the first byte of each identification number gives a device type and I got the full definitive list from the Dallas Web site. Also the last byte of the identification number is a cyclic redundancy check or CRC. This checks the validity of the numbers that have gone before and its derivation is described in the data sheets on the CD, as you can see from the code it is a fairly simple routine. In the desktop application the device number is replaced by CRC to show something is wrong.

Now we have found how to identify and check each device on the bus next month we can start using this bus in anger as I look at the temperature sensor chips. **END**

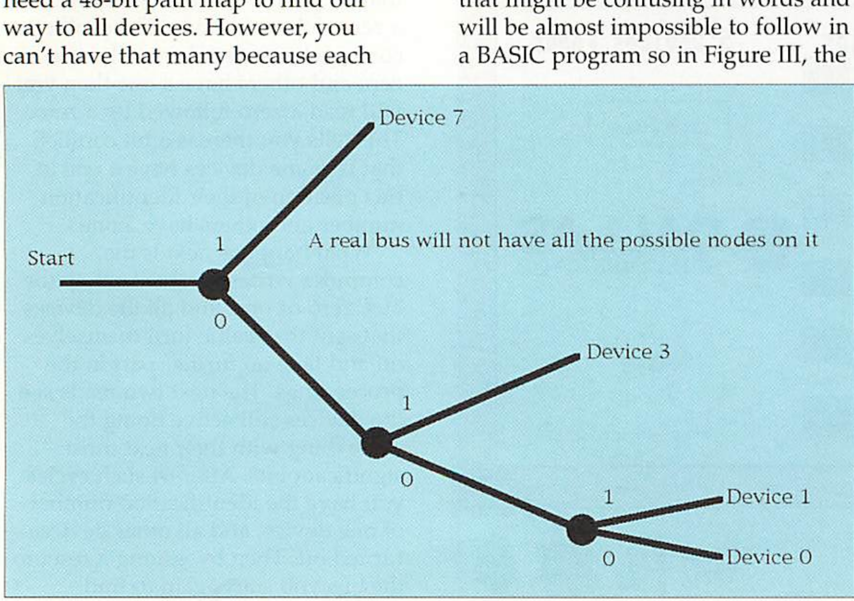


Figure II: A practical tree diagram

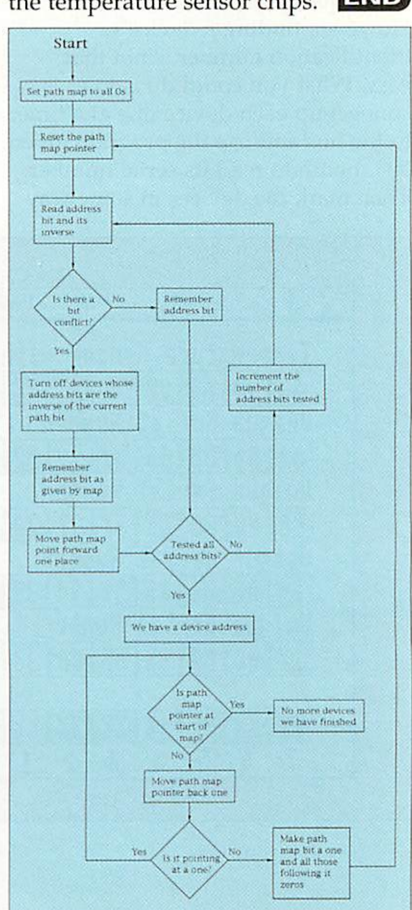


Figure III: How to get the device ID numbers

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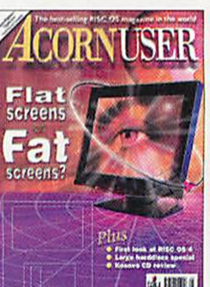
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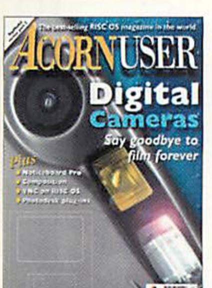
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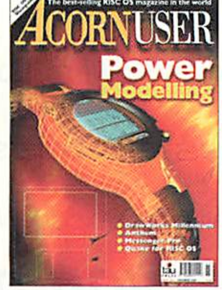
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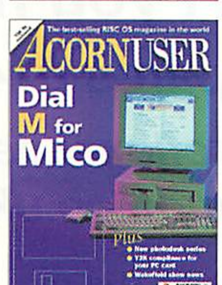


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Getting locked

In your Christmas issue, Mike Cook enquired on behalf of David Coulthard as to whether some reader knew of any cheap video titling package.

In 1993 I bought Clares *Titler* together with the essential Arc Genlock board fitted into my A420/1 after some necessary link-pin soldering on the motherboard. I have used this system successfully to title my videos ever since.

The main snag has been that the board has composite video output only and as I work in SVHS I have to accept a drop in image quality with the titles – in practice this usually isn't noticed.

Although not cheap in the first place I expect there will be a few secondhand titling systems about soon, most video enthusiasts are changing over to non-linear digital video editing systems and separate genlock titling is virtually obsolete.

Peter Hodson, Rugby

Tight zipped

In the news section of the Christmas 1999 issue of *Acorn User* you mention Robert Sprowson's zip file program for the 8-bit BBC Micro stating that it's a zip file compression program – but it isn't, it's an unpacker of uncompressed files only.

However there is a program that will create zip files on the BBC Micro, my program *Archive*. It's been tried on all of Acorn's 8-bit machines, on a variety of filing systems, and it even works on RISC OS computers.

In its current state it can create and unzip uncompressed zip files and I use it regularly for transferring files to my Web site. The compression and decompression routines are currently being written.

The program itself is on my Web site:

`http://www.libdems.force9.co.uk/usr/jgh/public/FileUtils/Archiver.run`

and also in Area 34 (Disk Utilities) of the Arcade BBS on 0208 654 2212.

To unzip the unzipper without having an unzip program is a potential problem so this is a self-extracting archive, you just CHAIN it and it extracts its component files.

Archive is also on my Web site as a zip file:

`http://www.libdems.force9.co.uk/usr/jgh/public/FileUtils/Archiver.zip`

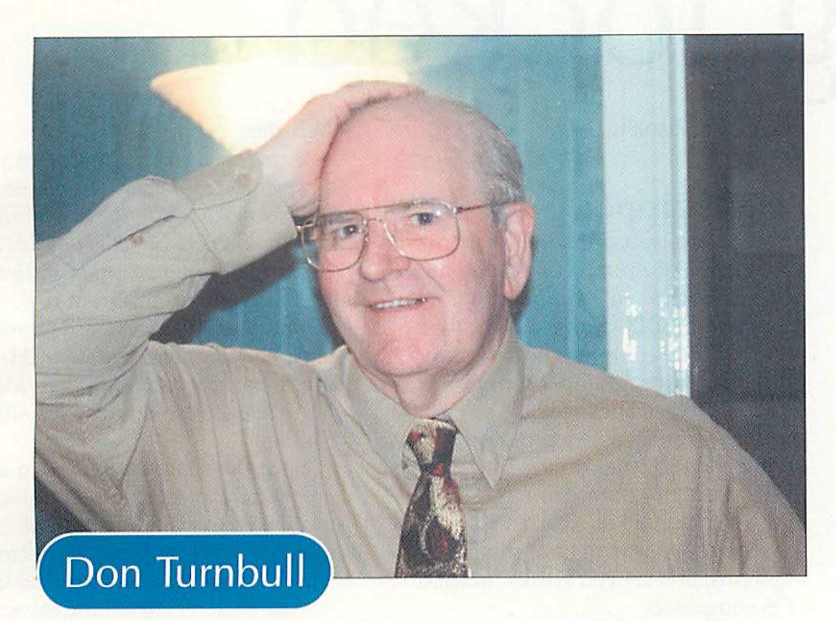
and the individual files can be accessed from within the directory:

`http://www.libdems.force9.co.uk/usr/jgh/public/FileUtils/Archiver/`

J. G. Harston, JGH BBC PD Library
70 Camm St, Walkley, Sheffield S8 3TR

Sorry for the mistake, it's good to know that the support for the 8-bit machines is still going on and new software is being developed.




Don Turnbull

There are a lot of small companies in the RISC OS world who make up the backbone of the market. They are always there at shows, totally committed and oozing enthusiasm. If you arrive at a show to find them not there it is like an old friend is missing. The Really Good Software Company is one of those companies. Don Turnbull, an archetypal friendly grandfather figure, is the director, and can usually be found on RGSC's small stand at shows. For those who don't know, RGSC sells useful programs like *NoticeBoard Pro* which creates presentations and stand-alone rolling displays.

> *Being a salesman, I do have some regret that I am not a programmer*

'I escaped university and went straight into advertising,' grins Don as we begin. 'It was for a roofing company on a roofing magazine. I was there for a few years and suddenly commercial television arrived.'

Don then cut his teeth in magazine publishing on something much bigger; one of the biggest selling weekly magazines in Britain.

'I got a job on the leading magazine for commercial television, *TV Times*. I was in charge of the advertising, not selling but making sure it was set out and paid for, so I was somewhere between editorial and advertising. That was like sitting on a rocket. It was wonderful, it expanded so much I was having to produce ten different editions for different regions of the country every week.'

The lifestyle was definitely interesting for Don: he would go out on Fleet Street drinking with all the journalists. Would-be stars and starlets also wanted to work for *TV Times* even if it was answering phones because they thought it was a back way into TV.

Don has used Acorn computers for years, ever since his son Steve (yes, they are related) convinced him to change from Commodore machines. Don still produces RCI, a specialist magazine for the roof, cladding and insulation industries which I'm sure featured on the 'missing words' round of "Have I Got News For You".

'Once I had got over the game-playing stage my main use for computers was, and still is, business. In my PR company I used it for handling sales, accounts, writing press releases, articles and doing the basic design work on brochures for clients. It was Steve who nudged me into setting up RGSC and so into the computer world.'

Like son, like father, perhaps?

'Being a salesman, I do have some regret that I am not a programmer. I would love to do it – like painting, I took classes, Steve just came along and he could do it. I just don't seem to have the brain for it I guess. However on the plus side I enjoy talking to people and Acorn people are great to do business with. From time to time I've noticed a surprised look on the face of a customer as it dawns on them that – from a technical point of view, at least – they are talking to a moron.'

Don't be fooled: this is someone who got into computers at an age when most people are thinking about retiring.

'I got interested in computers at a very late age,' laughs Don. 'I love taking the machines to pieces. I started out with electronics years and years ago building my own radios. I built my own TV: we wanted one for the Queen's Coronation but could not afford one so I built one out of army surplus. I had a great deal of help from an uncle who was really red hot at that sort of stuff. He would point out which bits I should not touch.'

'To be small, and remain in business, you have to be beautiful in product quality and service to customers – and enjoy whatever you do to earn a living. That is not to say that RISC OS-oriented companies need to be small in sales and staff, just small in the sense that they remain close to their customers, approachable and operate in a human way – do any of us really enjoy trying to get through the robotic walls that so many companies have set up on the grounds of economy?'

Don is so busy at the moment that he has not even had a chance to install RISC OS 4, but he has some time to read the newsgroups: 'People are constantly knocking PCs. It is a waste of time, they should put their energies into something positive and make it a strong market. You should get on and use your own platform. If you are constantly knocking you are inviting people to answer back.'

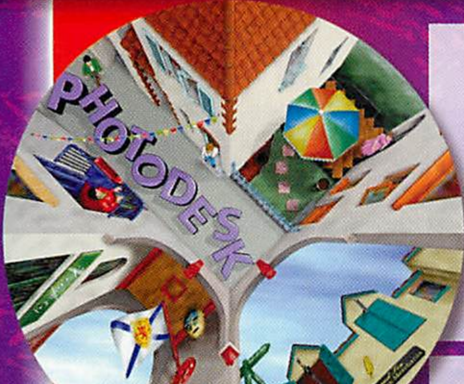
Jill Regan

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PHOTODESK2 is still available, retaining the CMS but not layers. **£199.00**

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